
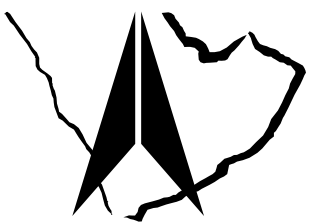
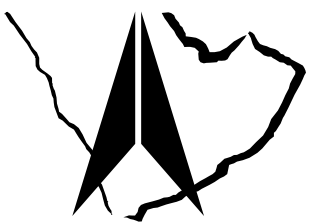
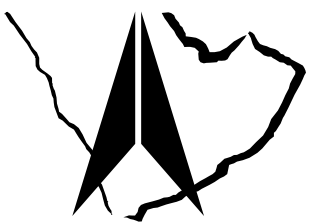
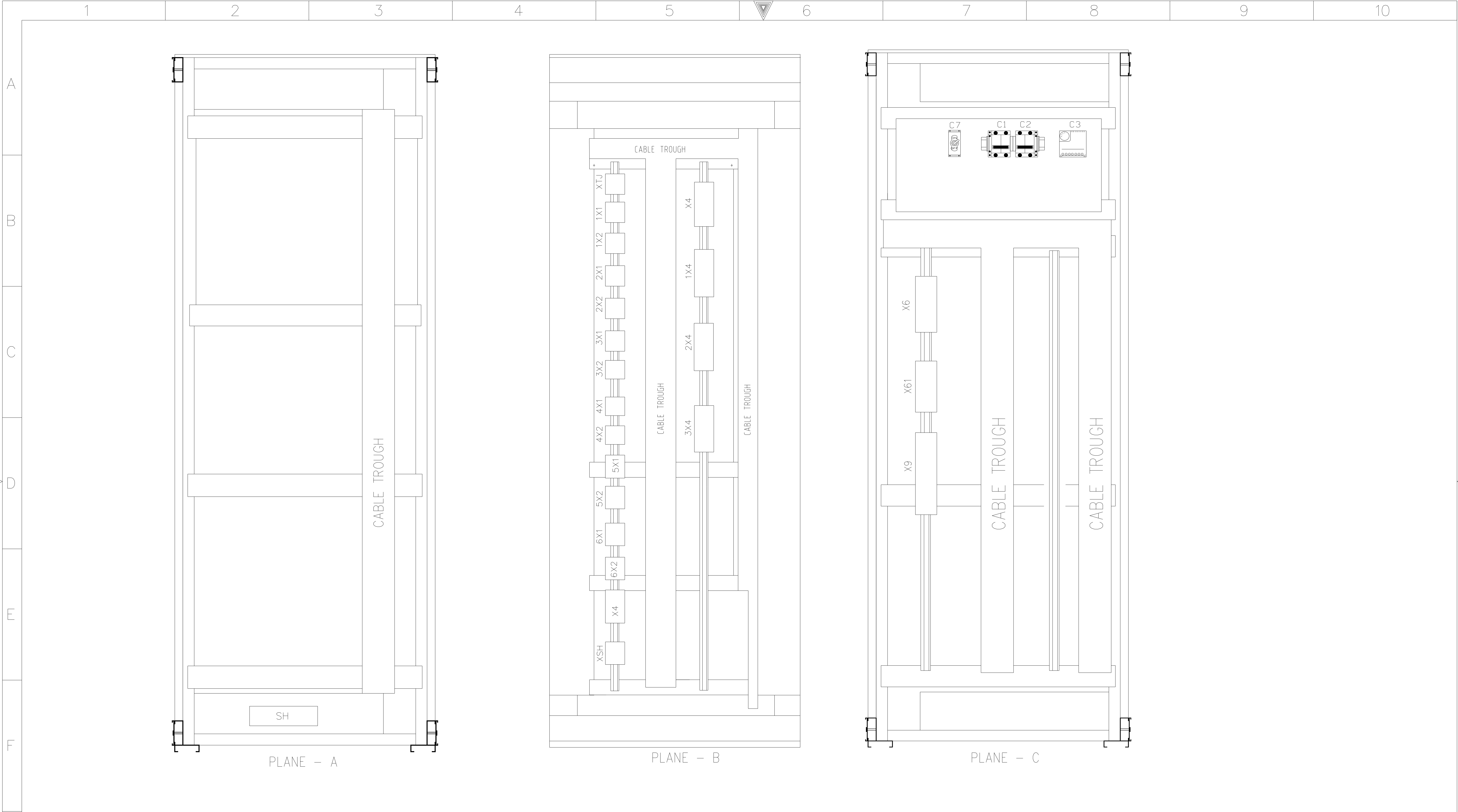


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OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC _____	


ASSEMBLY DRAWING

13.8kV AUTOMATIC CAPACITOR CONTROL PANEL

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

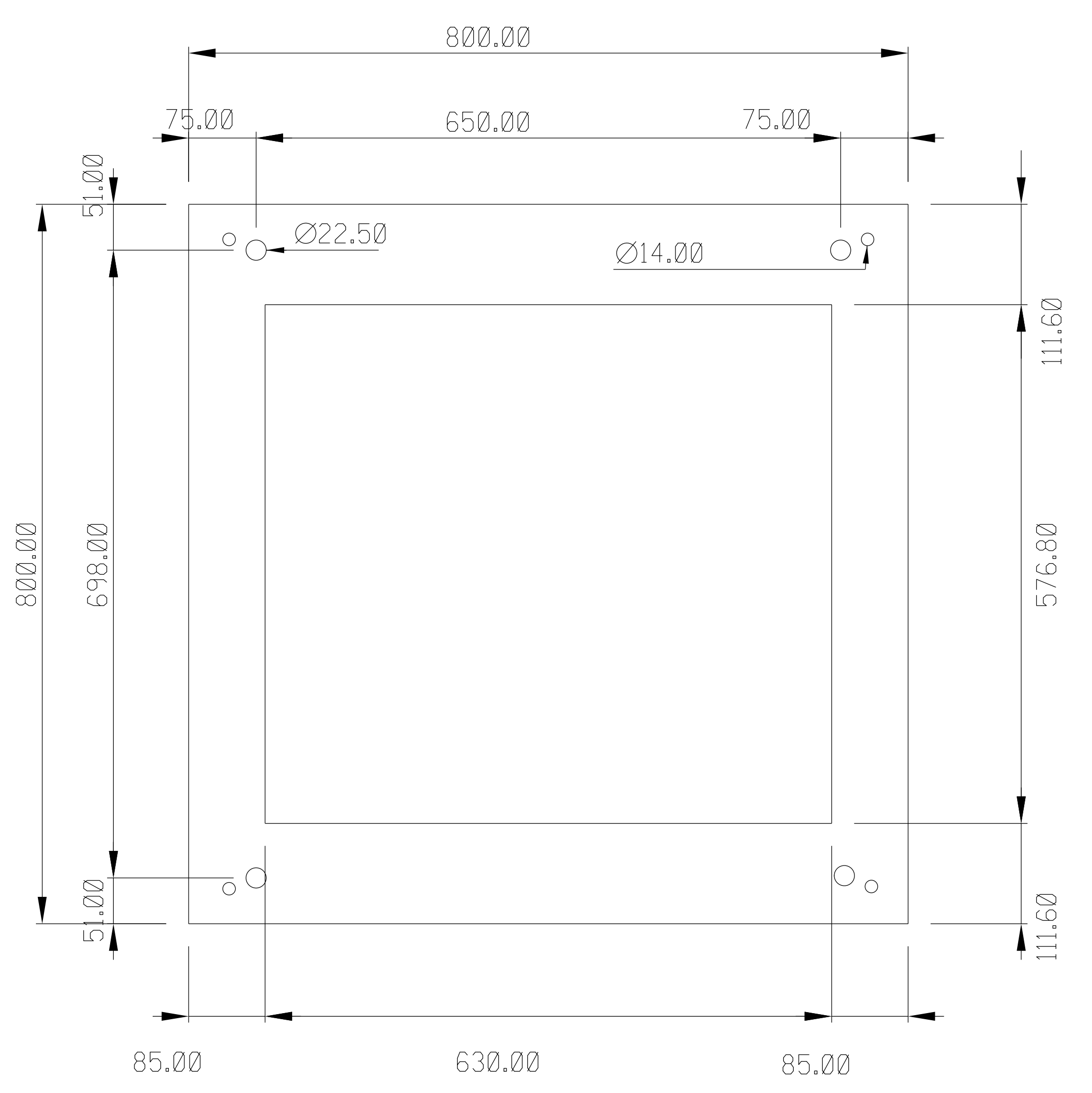
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

 **نقل الكهرباء**
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322957	SHT G02	CONT. G03	01

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SPECIFICATION : AS PER.31-TMSS-01, REV.0


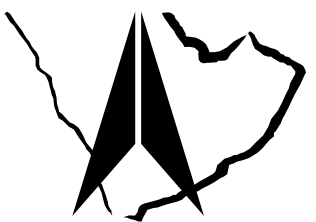
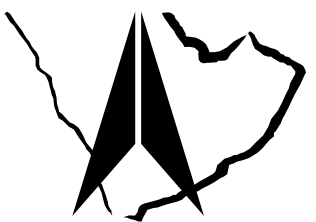
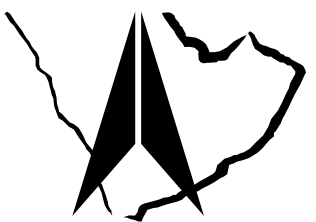
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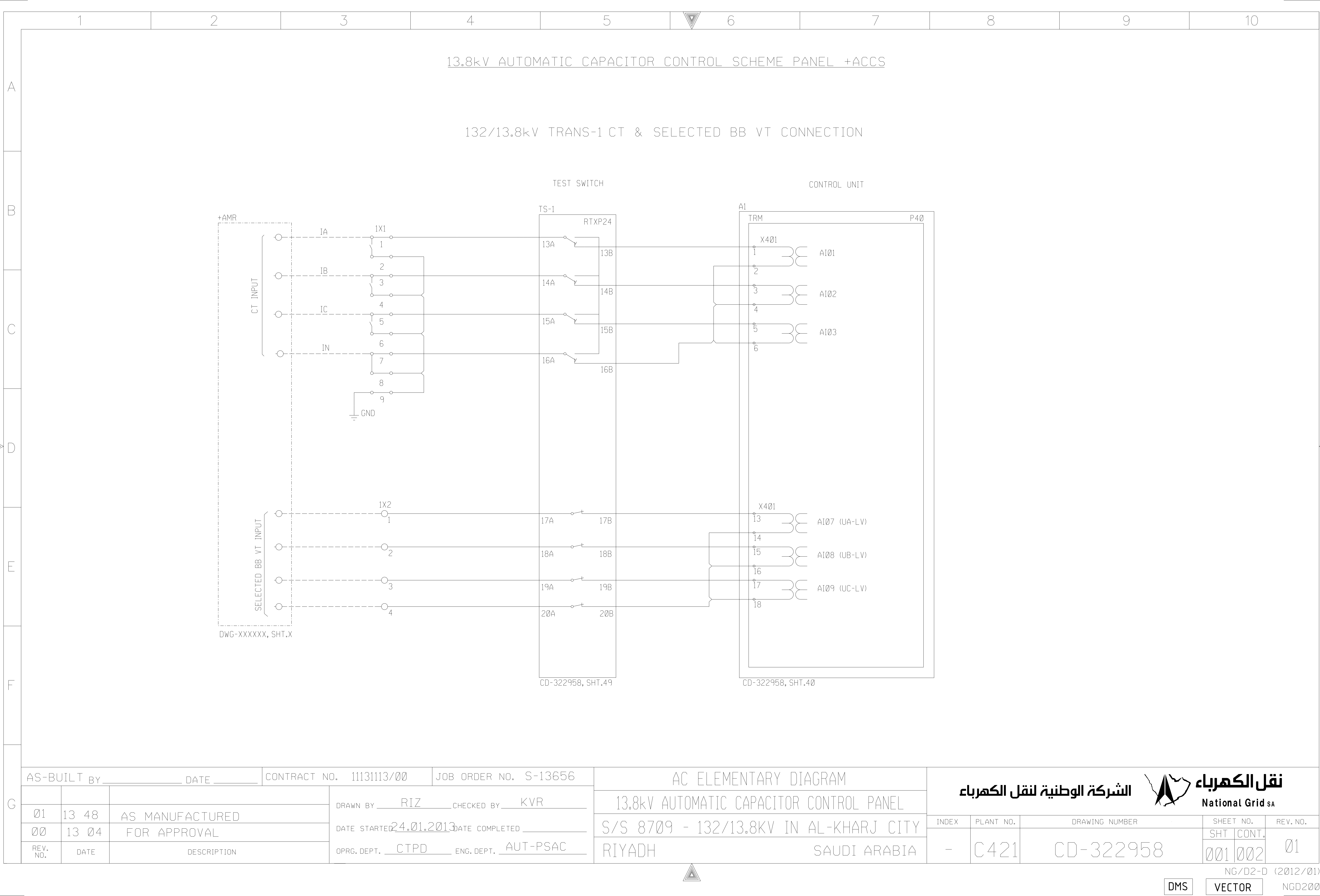
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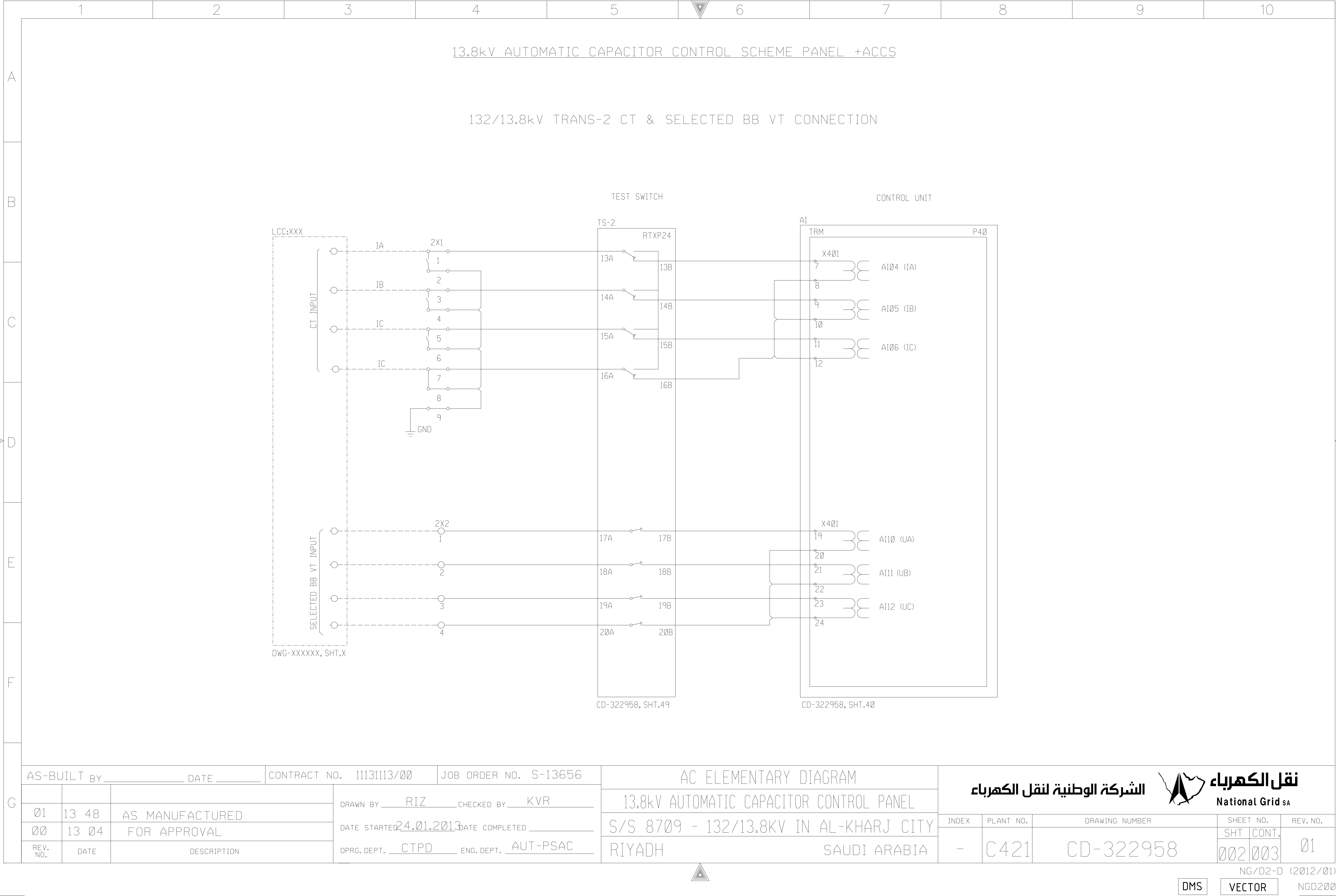
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C	<table><thead><tr><th>LOCATION REF.</th><th>ITEM DESIGNATION</th><th>D E S C R I P T I O N</th><th>QTY.</th><th>TYPE</th><th>MAKE</th><th>ORDERING INFORMATION</th></tr></thead><tbody><tr><td>U23.5001</td><td>TS-1</td><td>TEST SWITCH</td><td>1</td><td>RTXP24</td><td>ABB</td><td>RK 926 315-AK</td></tr><tr><td>U23.5002</td><td>TS-2</td><td>TEST SWITCH</td><td>1</td><td>RTXP24</td><td>ABB</td><td>RK 926 315-AK</td></tr><tr><td>U23.5003</td><td>TS-3</td><td>TEST SWITCH</td><td>1</td><td>RTXP24</td><td>ABB</td><td>RK 926 315-AK</td></tr><tr><td>U27.5001</td><td>TS-4</td><td>TEST SWITCH</td><td>1</td><td>RTXP24</td><td>ABB</td><td>RK 926 315-AK</td></tr><tr><td>U27.5002</td><td>TS-5</td><td>TEST SWITCH</td><td>1</td><td>RTXP24</td><td>ABB</td><td>RK 926 315-AK</td></tr><tr><td>U27.5003</td><td>TS-6</td><td>TEST SWITCH</td><td>1</td><td>RTXP24</td><td>ABB</td><td>RK 926 315-AK</td></tr><tr><td>U31.101 U31.301 U31.107</td><td>C1-CL C1-OP C2-CL C2-OP C3-CL C3-OP</td><td>INTERPOSING RELAYS FOR CLOSE/OPEN COMMAND AUX SUPPLY : 110-125V DC CONTACTS : 2NO/COIL</td><td>3</td><td>RXMC1</td><td>ABB</td><td>1MRK 000 660-AN</td></tr><tr><td>U31.307</td><td>74X/A2</td><td>DUAL COIL AUX.RELAY FOR CONTACT MULTIPLICATION AUX VOLTAGE : 110-125V DC CONTACTS : 3NO/COIL</td><td>1</td><td>RXMB1</td><td>ABB</td><td>1MRK 000 803-AN</td></tr><tr><td>U31.113</td><td>74/DC</td><td>DC SUPPLY SUPERVISION RELAY AUX VOLTAGE : 110-125V DC CONTACTS : 1NO+2NC/COIL FLAG : SELF RESET</td><td>1</td><td>RXSF1</td><td>ABB</td><td>RK 271 019-AN</td></tr><tr><td>U39.5001</td><td>Q1</td><td>6A MCB FOR INCOMING DC SUPPLY WITH 2NC AUX. CONTACT</td><td>1</td><td>S282UC-K6</td><td>ABB</td><td>GH S282 0164 R0337</td></tr><tr><td>U39.5002</td><td>C01,C02</td><td>POWER SOCKET DUPLEX TYPE, 127 & 220V AC</td><td>1</td><td>NEMA</td><td>LEGRAND</td><td>GH S282 0001 R0377</td></tr><tr><td>U39.5003</td><td>TJ</td><td>TELEPHONE JACK</td><td>1</td><td>EDF410</td><td>EDISON</td><td>5-20R,6-20R</td></tr><tr><td></td><td>C1</td><td>2 POLE 10A MCB FOR HEATER/ILLUMINATION CKT. WITH 2NC AUX. CONTACT</td><td>1</td><td>S202-PK10</td><td>ABB</td><td>984C+217G</td></tr><tr><td></td><td>C2</td><td>2 POLE 10A MCB FOR INCOMING AC AUX. SUPPLY WITH 2NC AUX. CONTACT</td><td>1</td><td>S202-K10</td><td>ABB</td><td>GH S282 0001 R0377</td></tr><tr><td></td><td>C3</td><td>THERMOSTAT FOR SPACE HEATER, 5-60</td><td>1</td><td>SK3110</td><td>RITTAL</td><td>GH S282 0001 R0427</td></tr><tr><td></td><td>C7</td><td>ON/OFF SWITCH FOR SPACE HEATER</td><td>1</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>SH</td><td>SPACE HEATER -120V AC,150 W</td><td>1</td><td>1FZEK7580104</td><td>COMPOTECH</td><td></td></tr><tr><td></td><td>DS</td><td>DOOR SWITCH FOR FLUORESCENT LAMPS</td><td>1</td><td>LS30PLSB02</td><td>ABB</td><td>LS30PLSB02</td></tr><tr><td></td><td>IL</td><td>FLOURESCENT LAMP, 127V AC,20WATT</td><td>1</td><td>SP-20W</td><td>SUNON</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>1X1,2X1 3X1,4X1 5X1,6X1</td><td>TERMINAL BLOCK FOR CT CKT. (9 EACH)</td><td>54</td><td>OTTA 6T P/P</td><td>PHOENIX</td><td>0790462</td></tr><tr><td></td><td>1X2,2X2 3X2,4X2 5X2,6X2</td><td>TERMINAL BLOCK FOR VT CKT. (5 EACH)</td><td>30</td><td>D6/8.ST1.RS</td><td>ENTRELEC</td><td>--</td></tr><tr><td></td><td>X3</td><td>TERMINAL BLOCKS DISCONNECTIBLE FOR AC CIRCUITS</td><td>10</td><td>D6/8.ST1.RS</td><td>ENTRELEC</td><td>1SNA 115 831 R0400</td></tr><tr><td></td><td>X4</td><td>TERMINAL BLOCKS DISCONNECTIBLE FOR DC CIRCUITS</td><td>2</td><td>D6/8.ST1.RS</td><td>ENTRELEC</td><td>1SNA 115 831 R0400</td></tr><tr><td></td><td>1X4</td><td>TERMINAL BLOCK FOR DC CKT</td><td>75</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>2X4</td><td>TERMINAL BLOCK FOR DC CKT</td><td>45</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>3X4</td><td>TERMINAL BLOCK FOR FOR OPEN/CLOSE COMMAND</td><td>40</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>X6</td><td>TERMINAL BLOCK FOR ANNUNCIATION CKT</td><td>10</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>XSH</td><td>TERMINAL BLOCK FOR SPACE HEATER</td><td>2</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>XTJ</td><td>TERMINAL BLOCK FOR TEL. JACK</td><td>4</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>X61</td><td>TERMINAL BLOCK FOR ALARM CKT</td><td>10</td><td>M6/8.SNB</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td>X9</td><td>TERMINAL BLOCK FOR SPARE</td><td>10</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 688 R2500</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>										LOCATION REF.	ITEM DESIGNATION	D E S C R I P T I O N	QTY.	TYPE	MAKE	ORDERING INFORMATION	U23.5001	TS-1	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK	U23.5002	TS-2	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK	U23.5003	TS-3	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK	U27.5001	TS-4	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK	U27.5002	TS-5	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK	U27.5003	TS-6	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK	U31.101 U31.301 U31.107	C1-CL C1-OP C2-CL C2-OP C3-CL C3-OP	INTERPOSING RELAYS FOR CLOSE/OPEN COMMAND AUX SUPPLY : 110-125V DC CONTACTS : 2NO/COIL	3	RXMC1	ABB	1MRK 000 660-AN	U31.307	74X/A2	DUAL COIL AUX.RELAY FOR CONTACT MULTIPLICATION AUX VOLTAGE : 110-125V DC CONTACTS : 3NO/COIL	1	RXMB1	ABB	1MRK 000 803-AN	U31.113	74/DC	DC SUPPLY SUPERVISION RELAY AUX VOLTAGE : 110-125V DC CONTACTS : 1NO+2NC/COIL FLAG : SELF RESET	1	RXSF1	ABB	RK 271 019-AN	U39.5001	Q1	6A MCB FOR INCOMING DC SUPPLY WITH 2NC AUX. CONTACT	1	S282UC-K6	ABB	GH S282 0164 R0337	U39.5002	C01,C02	POWER SOCKET DUPLEX TYPE, 127 & 220V AC	1	NEMA	LEGRAND	GH S282 0001 R0377	U39.5003	TJ	TELEPHONE JACK	1	EDF410	EDISON	5-20R,6-20R		C1	2 POLE 10A MCB FOR HEATER/ILLUMINATION CKT. WITH 2NC AUX. CONTACT	1	S202-PK10	ABB	984C+217G		C2	2 POLE 10A MCB FOR INCOMING AC AUX. SUPPLY WITH 2NC AUX. CONTACT	1	S202-K10	ABB	GH S282 0001 R0377		C3	THERMOSTAT FOR SPACE HEATER, 5-60	1	SK3110	RITTAL	GH S282 0001 R0427		C7	ON/OFF SWITCH FOR SPACE HEATER	1												SH	SPACE HEATER -120V AC,150 W	1	1FZEK7580104	COMPOTECH			DS	DOOR SWITCH FOR FLUORESCENT LAMPS	1	LS30PLSB02	ABB	LS30PLSB02		IL	FLOURESCENT LAMP, 127V AC,20WATT	1	SP-20W	SUNON										1X1,2X1 3X1,4X1 5X1,6X1	TERMINAL BLOCK FOR CT CKT. (9 EACH)	54	OTTA 6T P/P	PHOENIX	0790462		1X2,2X2 3X2,4X2 5X2,6X2	TERMINAL BLOCK FOR VT CKT. (5 EACH)	30	D6/8.ST1.RS	ENTRELEC	--		X3	TERMINAL BLOCKS DISCONNECTIBLE FOR AC CIRCUITS	10	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400		X4	TERMINAL BLOCKS DISCONNECTIBLE FOR DC CIRCUITS	2	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400		1X4	TERMINAL BLOCK FOR DC CKT	75	M6/8.RS	ENTRELEC	1SNA 115 688 R2500		2X4	TERMINAL BLOCK FOR DC CKT	45	M6/8.RS	ENTRELEC	1SNA 115 688 R2500		3X4	TERMINAL BLOCK FOR FOR OPEN/CLOSE COMMAND	40	M6/8.RS	ENTRELEC	1SNA 115 688 R2500		X6	TERMINAL BLOCK FOR ANNUNCIATION CKT	10	M6/8.RS	ENTRELEC	1SNA 115 688 R2500		XSH	TERMINAL BLOCK FOR SPACE HEATER	2	M6/8.RS	ENTRELEC	1SNA 115 688 R2500		XTJ	TERMINAL BLOCK FOR TEL. JACK	4	M6/8.RS	ENTRELEC	1SNA 115 688 R2500		X61	TERMINAL BLOCK FOR ALARM CKT	10	M6/8.SNB	ENTRELEC	1SNA 115 688 R2500		X9	TERMINAL BLOCK FOR SPARE	10	M6/8.RS	ENTRELEC	1SNA 115 688 R2500																					
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U23.5003	TS-3	TEST SWITCH	1	RTXP24	ABB	RK 926 315-AK																																																																																																																																																																																																																																																																							
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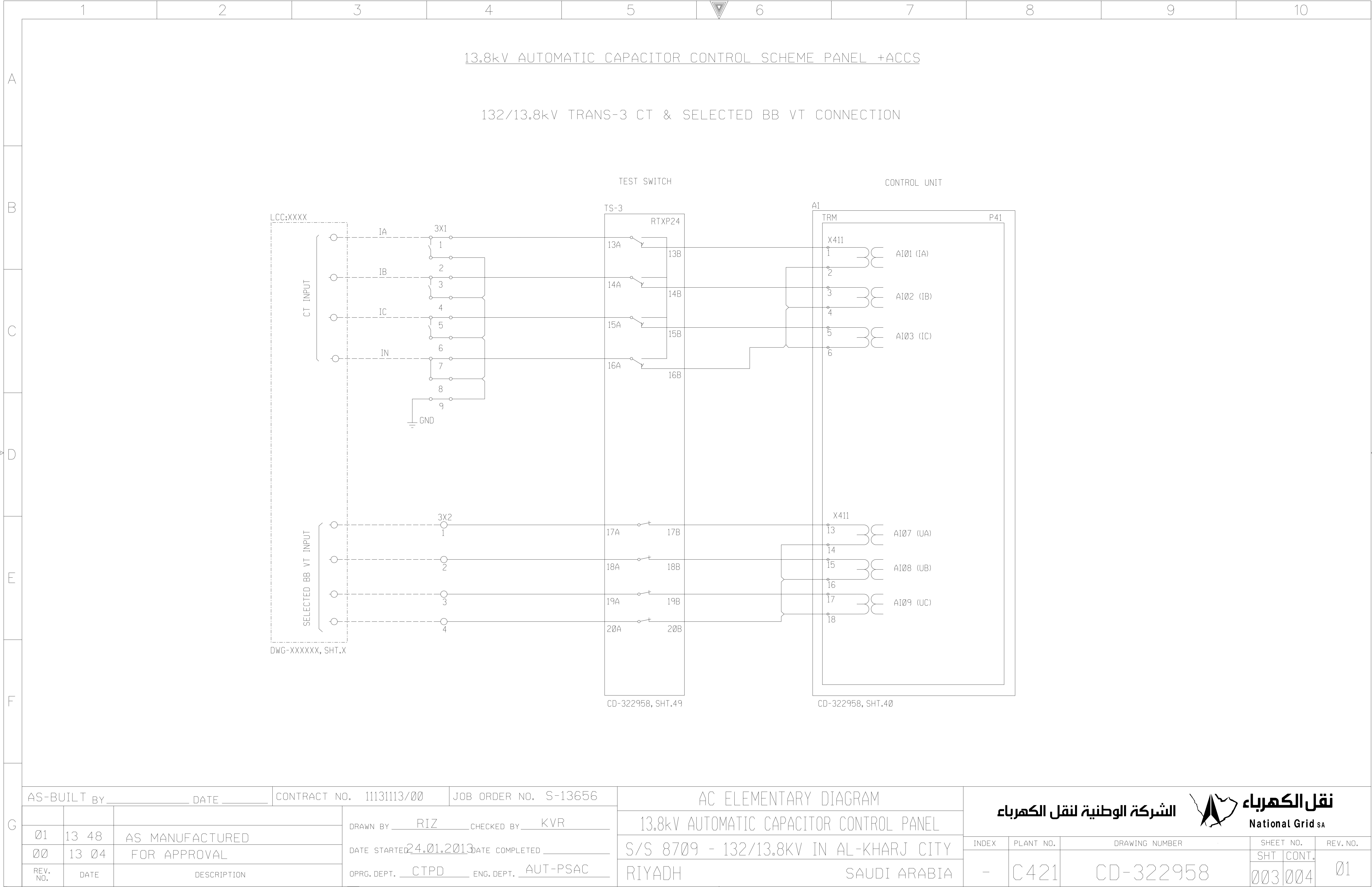
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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A																																																		
B																																																										
C	CONTRACTOR : ABB Contracting Company																																																									
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D	PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY																																																									
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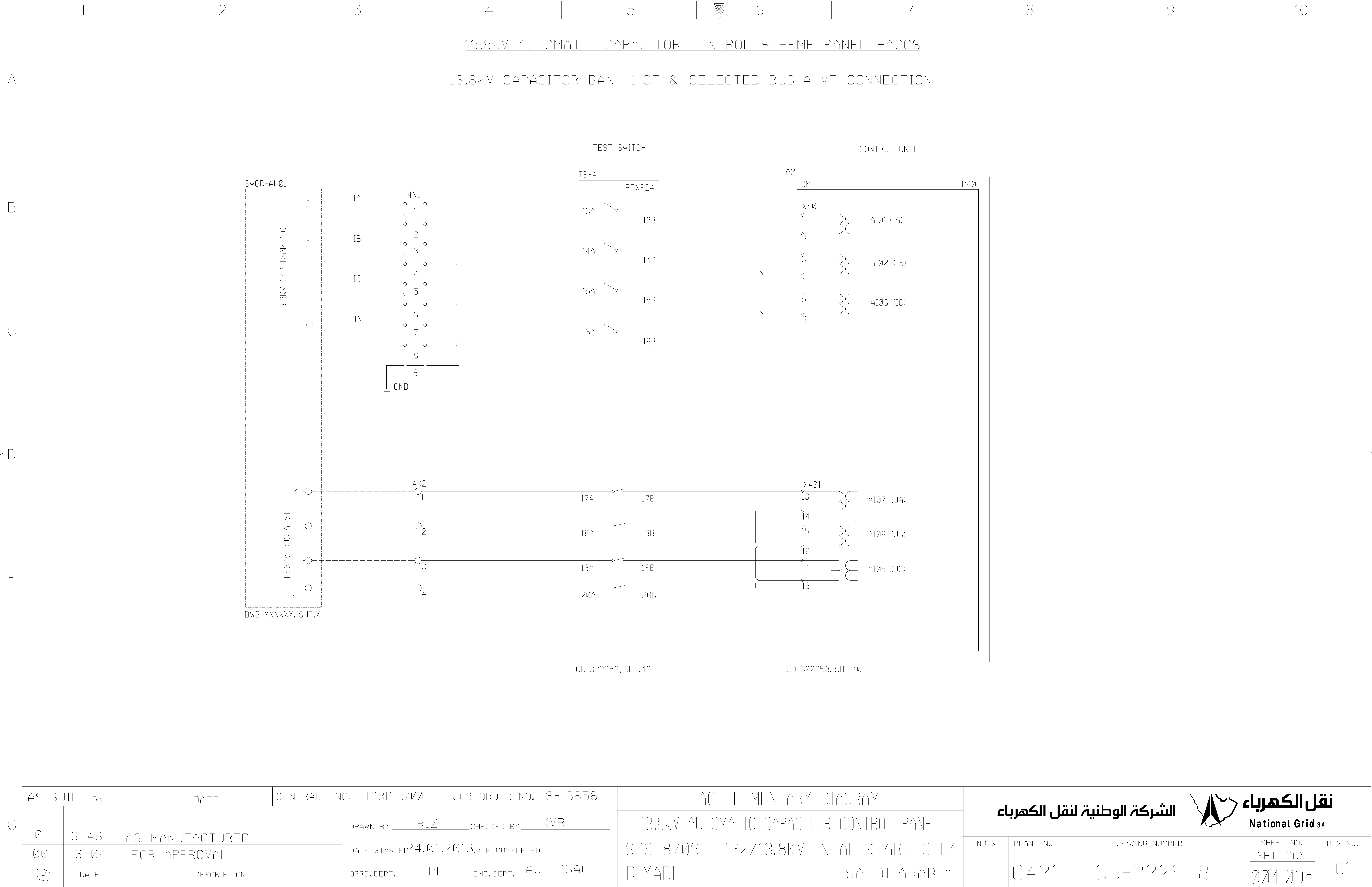


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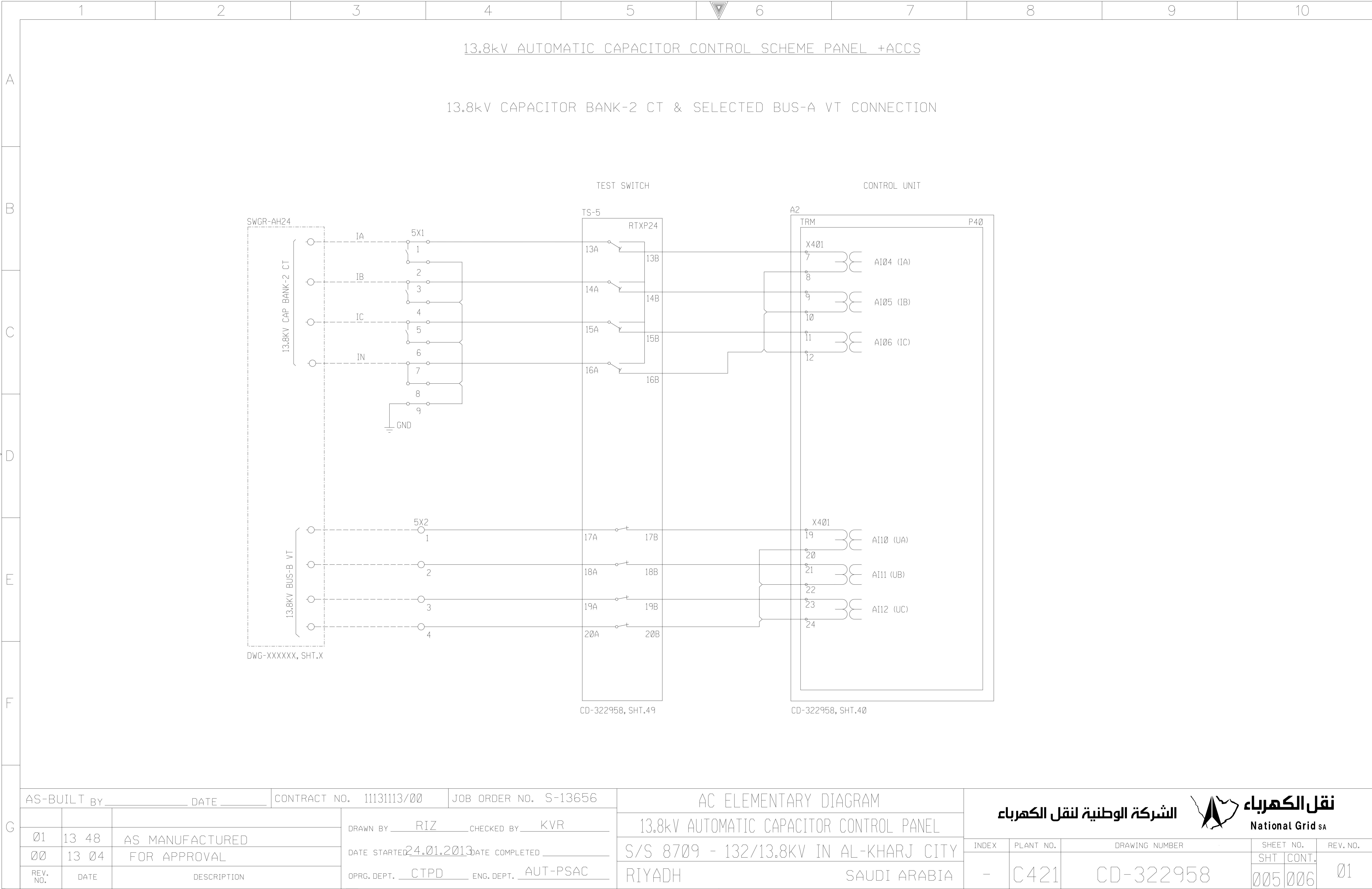


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							13.8kV AUTOMATIC CAPACITOR CONTROL PANEL							
01	13 48	AS MANUFACTURED	DRAWN BY RIZ		CHECKED BY KVR		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED		RIYADH SAUDI ARABIA		-	C421	CD-322958	SHT 004	CONT. 005	01
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC									



AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

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FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED _____

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

AC ELEMENTARY DIAGRAM

13.8kV AUTOMATIC CAPACITOR CONTROL PANEL

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX

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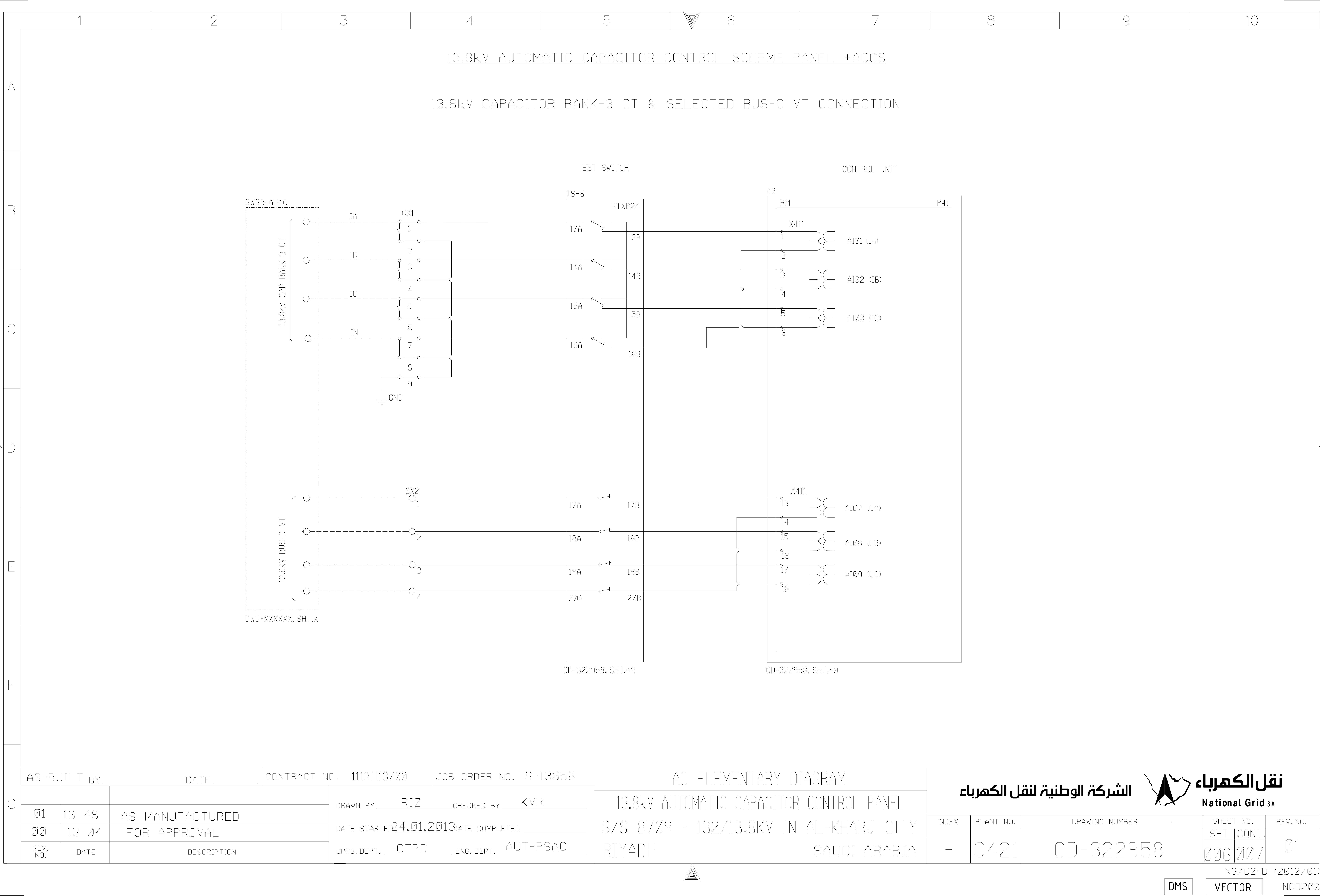
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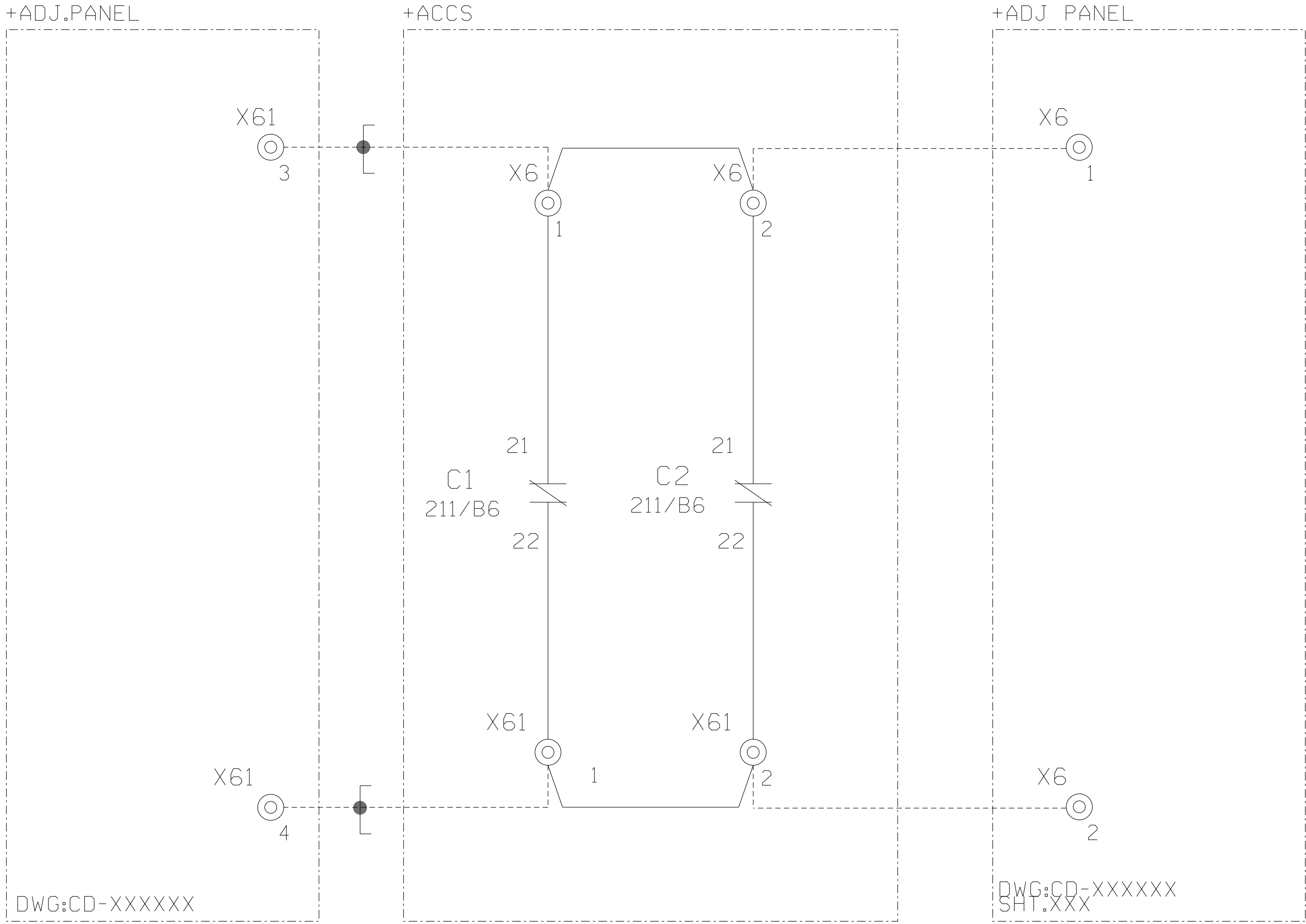
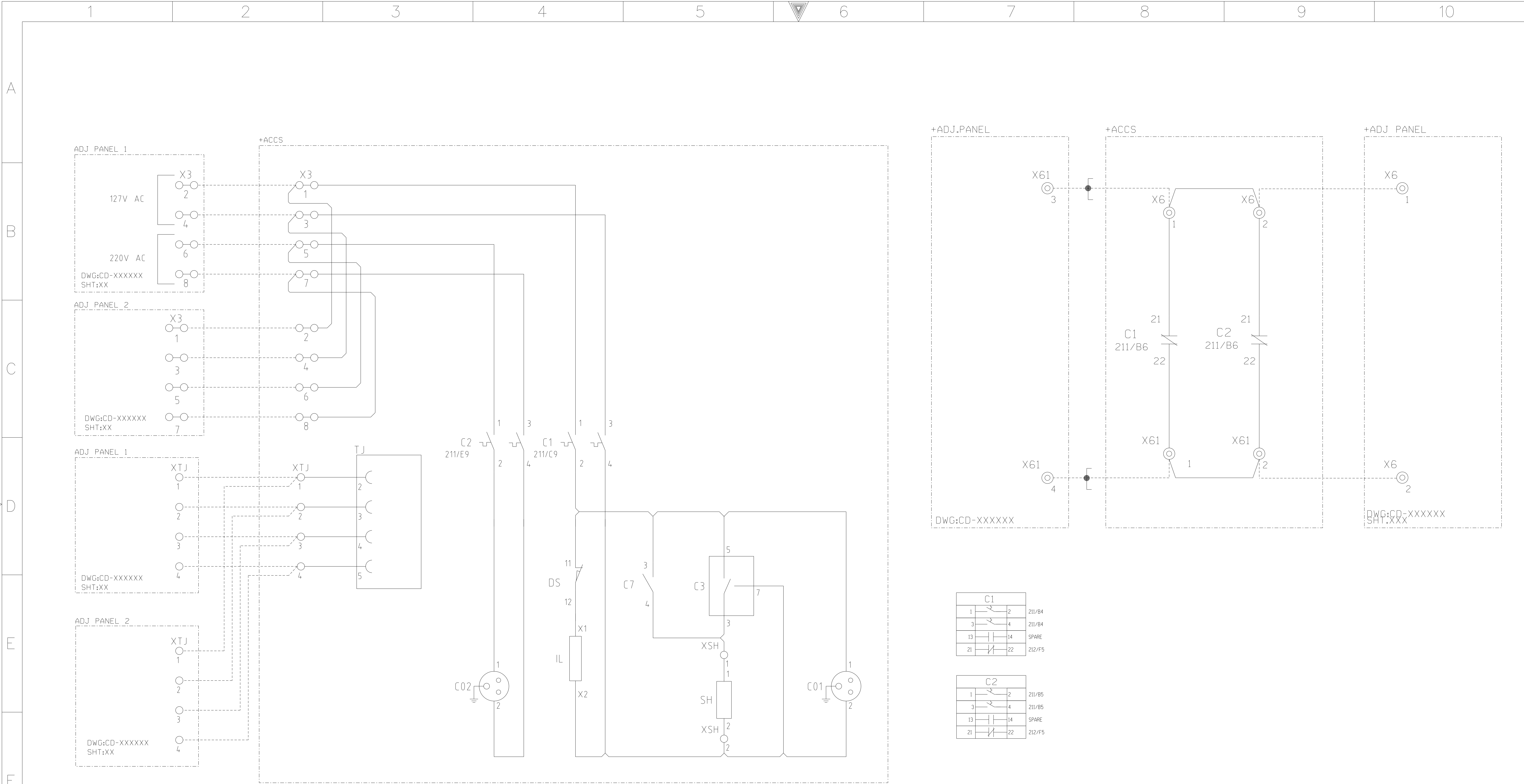
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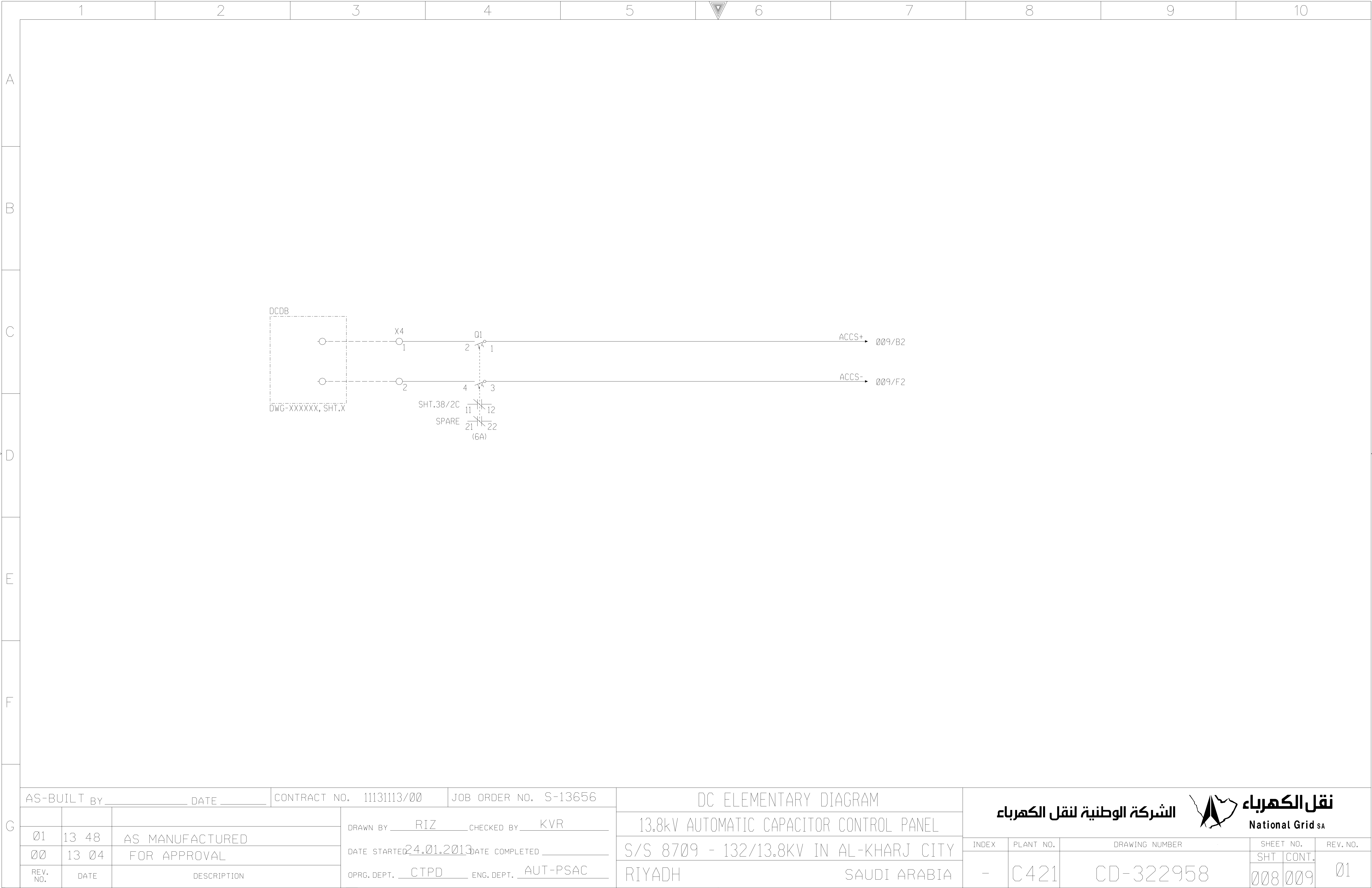
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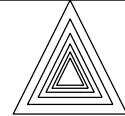
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21	22	212/F5	

C2			
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3	4	21/B5	
13	14	SPARE	
21	22	212/F5	

G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		AC ELEMENTARY DIAGRAM		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>						
				DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>		13.8kv AUTOMATIC CAPACITOR CONTROL PANEL									
	01	13 48	AS MANUFACTURED		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
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	REV. NO.	DATE	DESCRIPTION										007	008	




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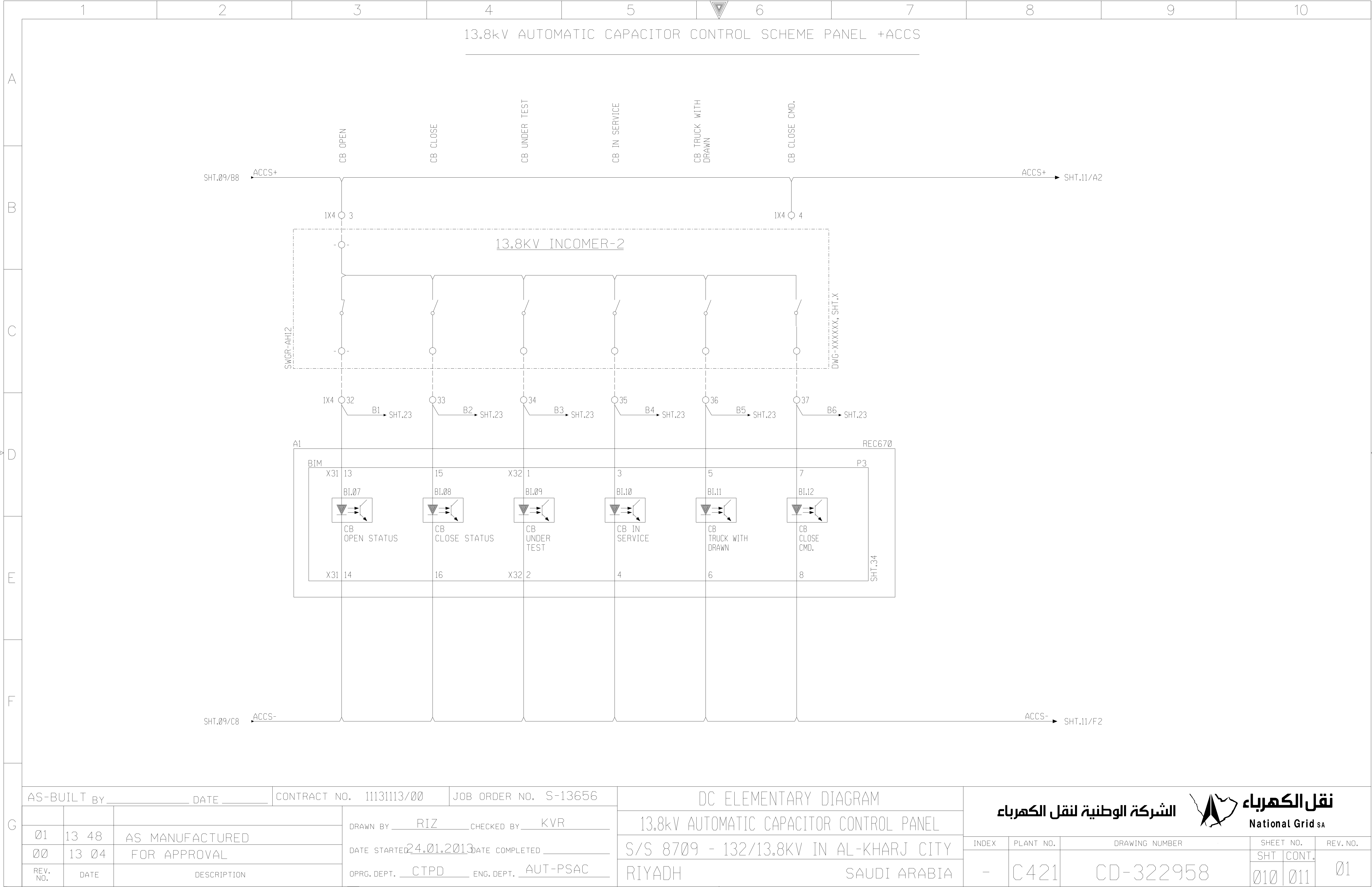




AS-BUILT BY _____		DATE _____	CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656
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00	13 04	FOR APPROVAL	DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>	

DC ELEMENTARY DIAGRAM	
13.8kV AUTOMATIC CAPACITOR CONTROL PANEL	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH	SAUDI ARABIA

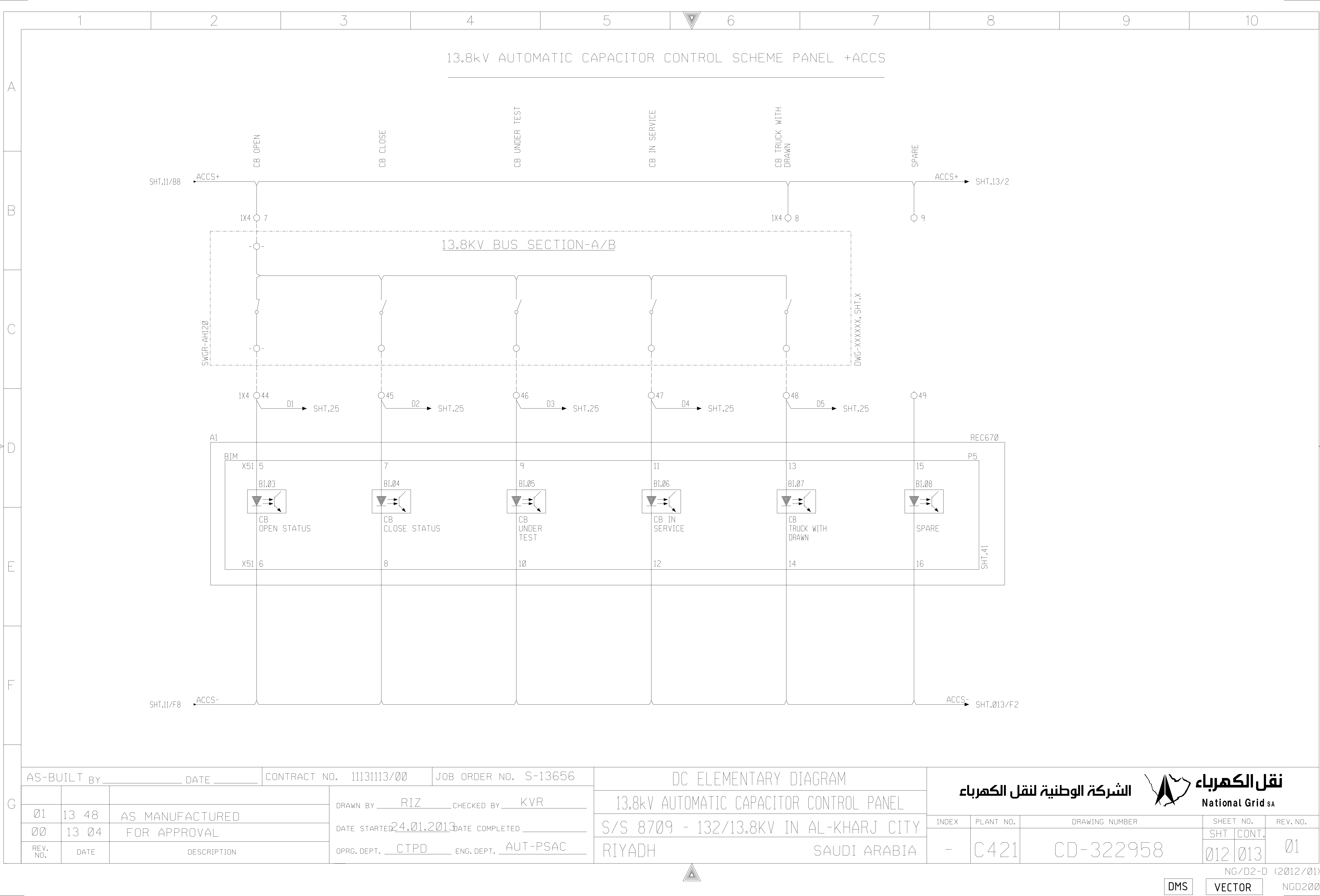
الشركة الوطنية لنقل الكهرباء		 نقل الكهرباء National Grid SA	
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			REV. NO. 01

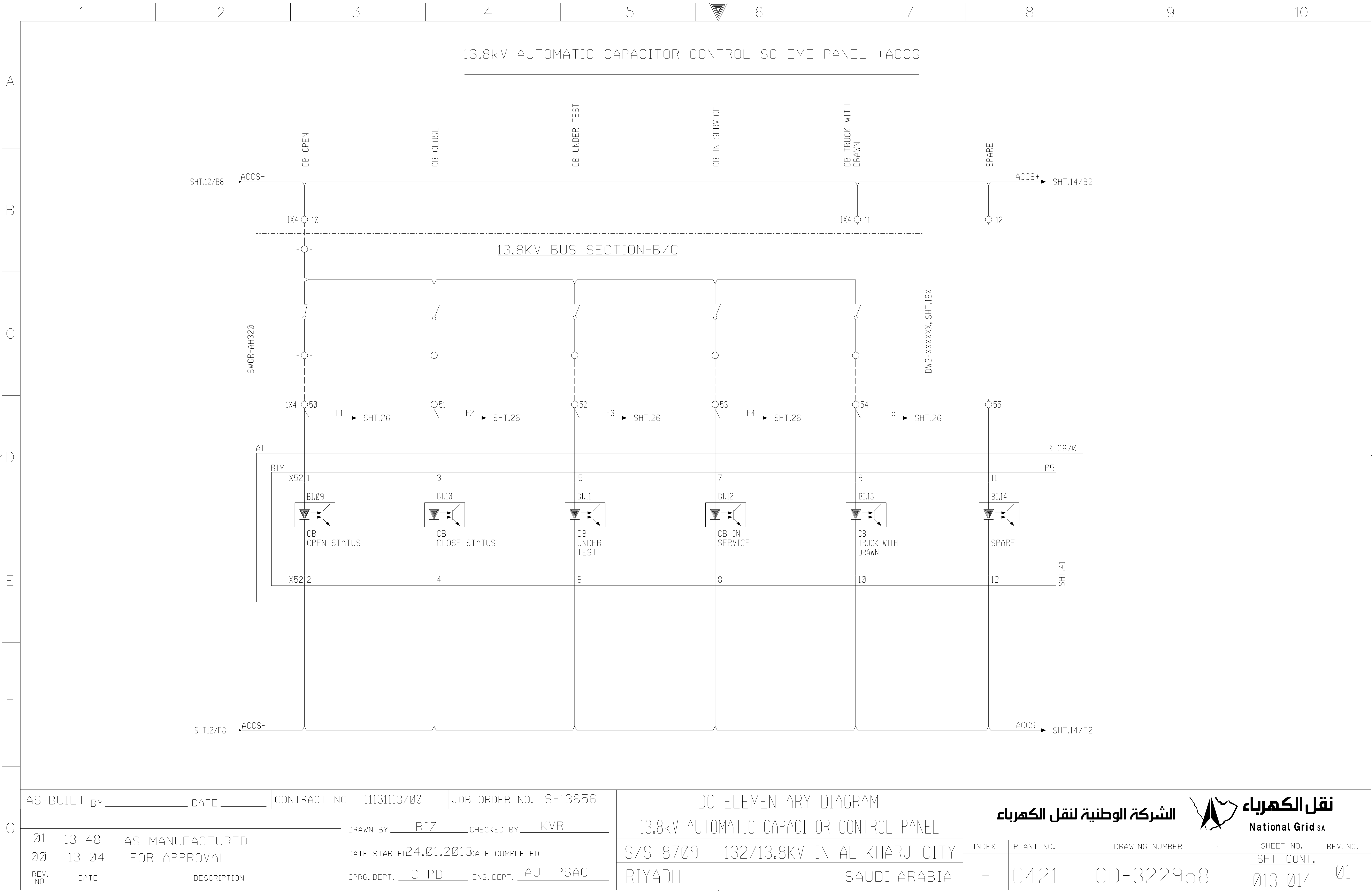


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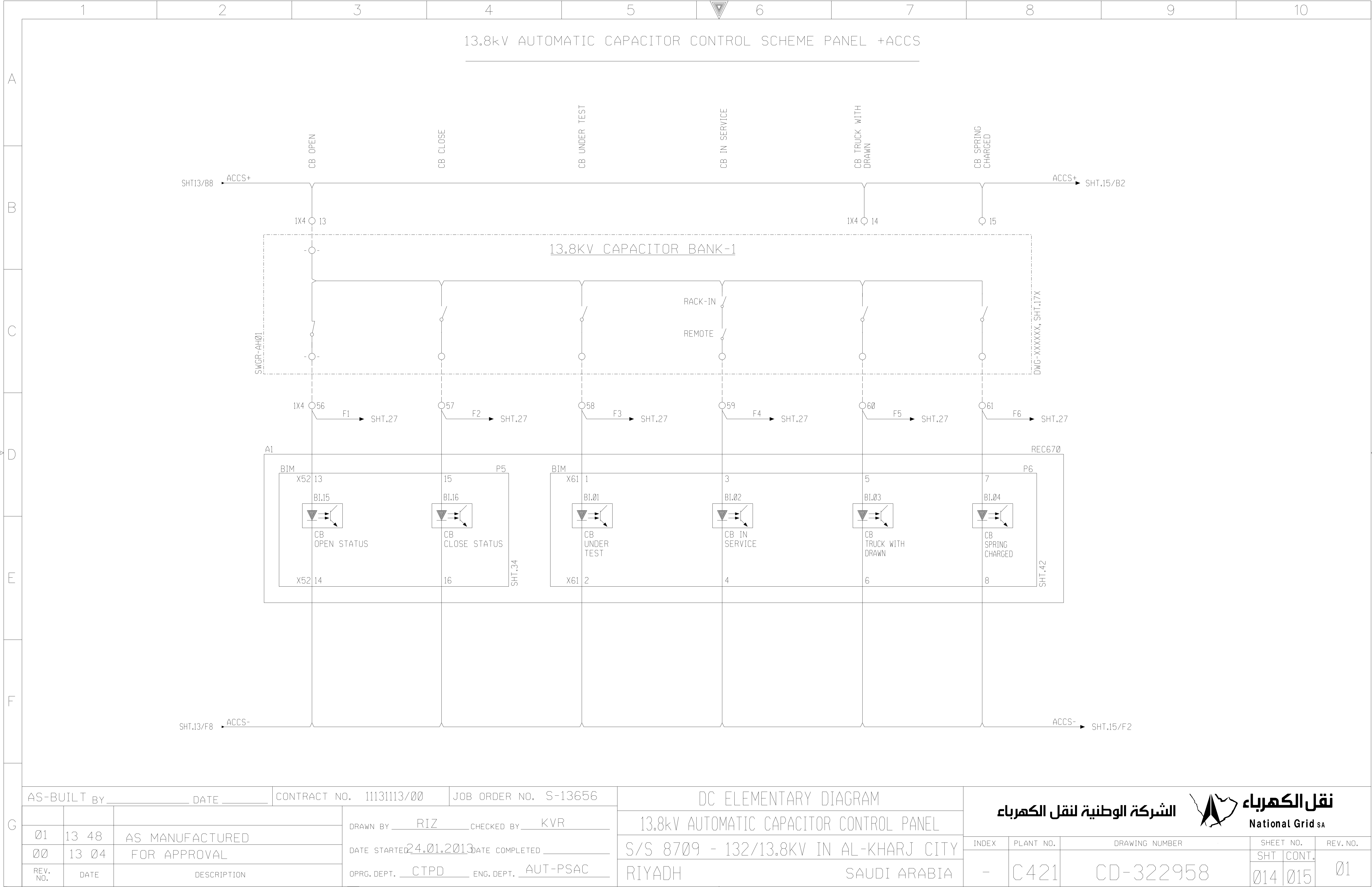


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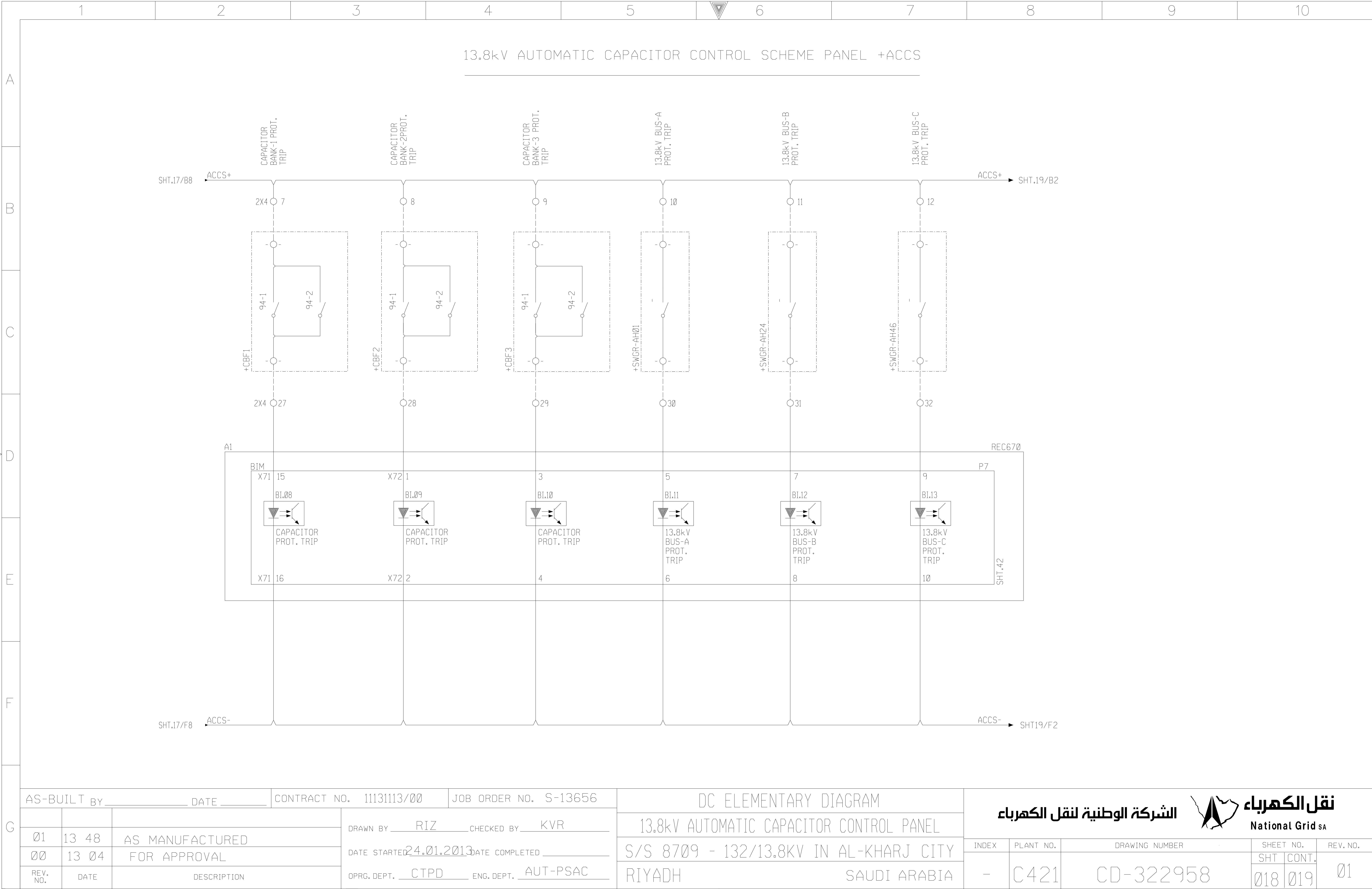


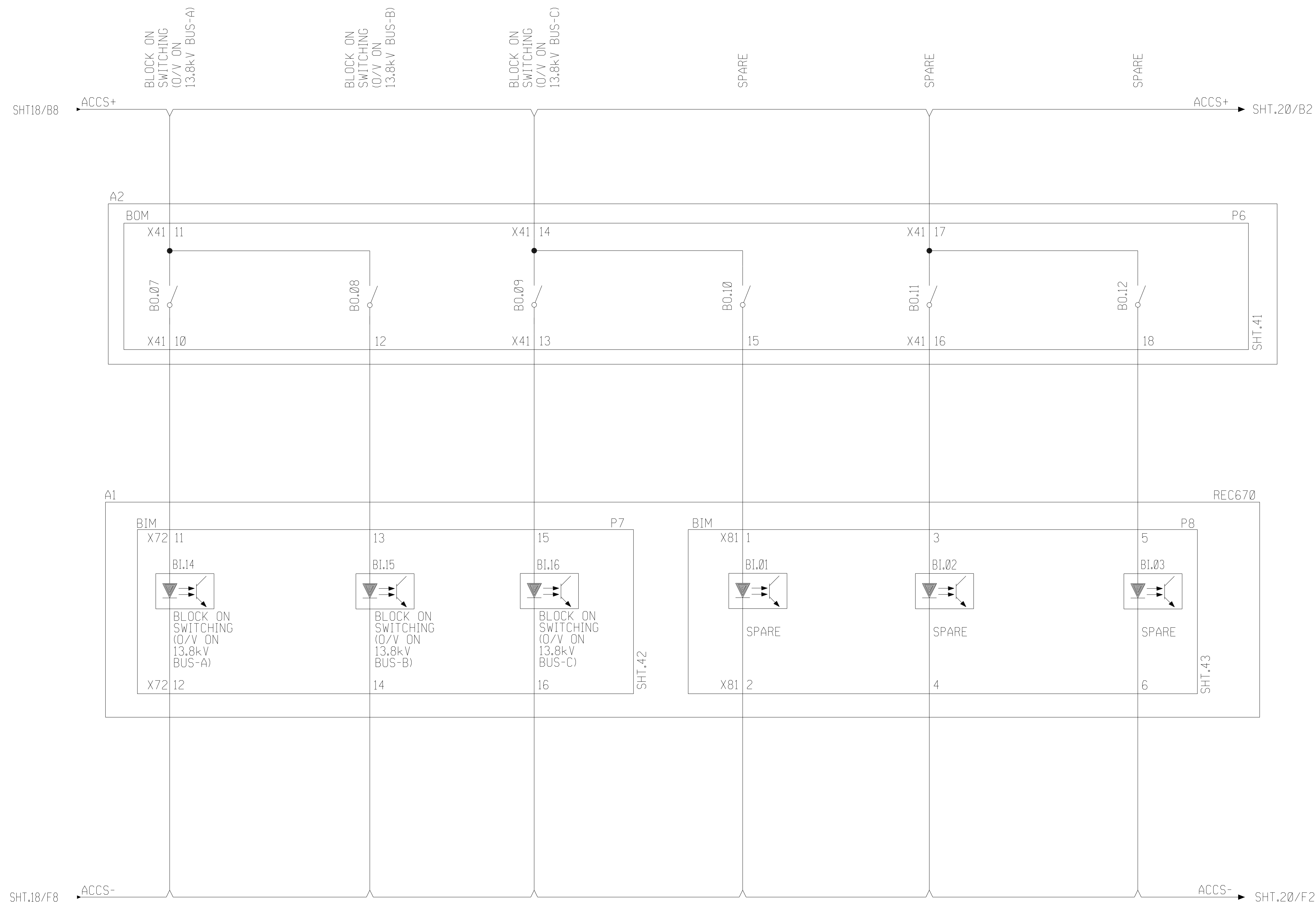
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DC ELEMENTARY DIAGRAM	
13.8KV AUTOMATIC CAPACITOR CONTROL PANEL	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH	SAUDI ARABIA

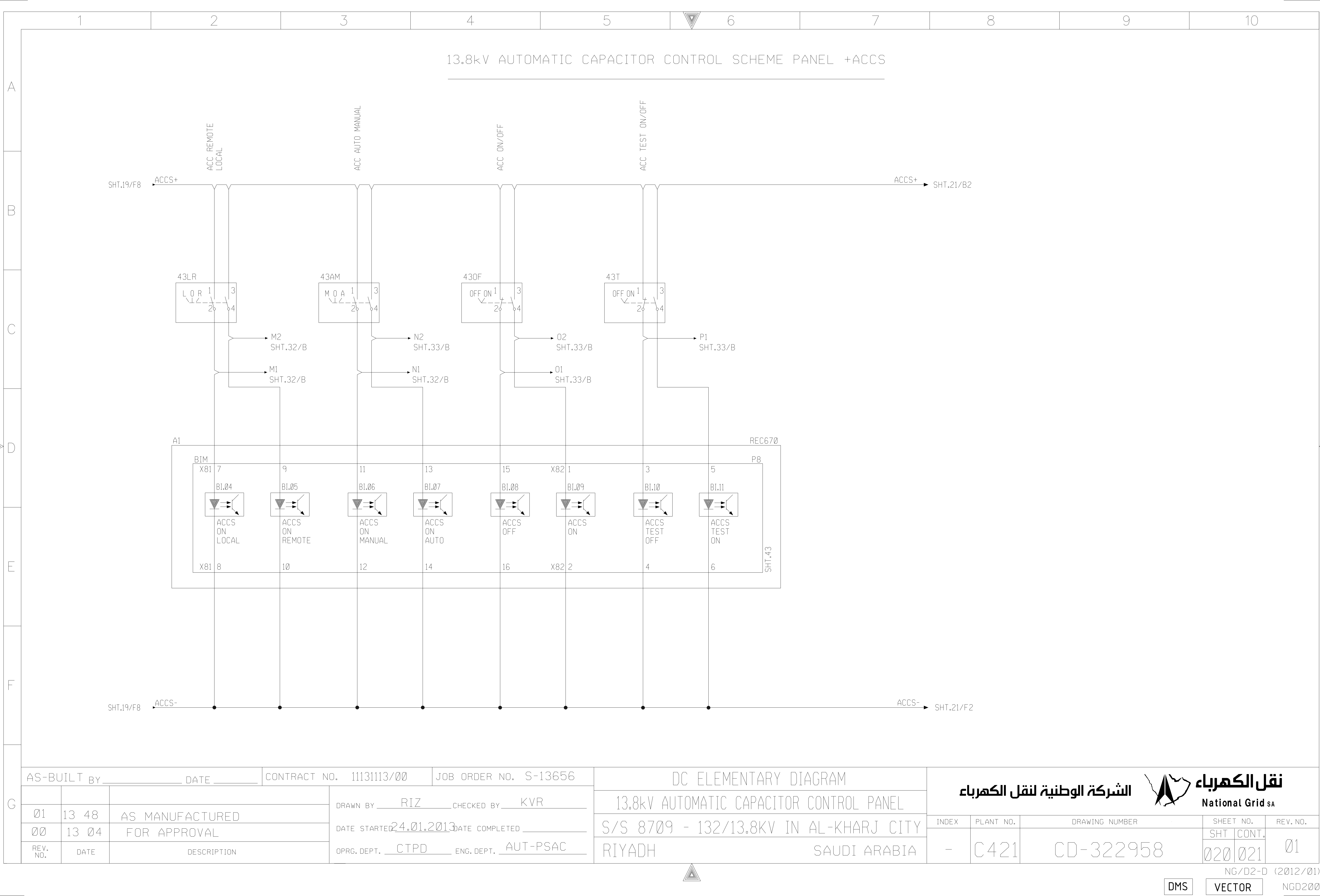


نقل الكهرباء

National Grid SA

الشركة الوطنية لنقل الكهرباء

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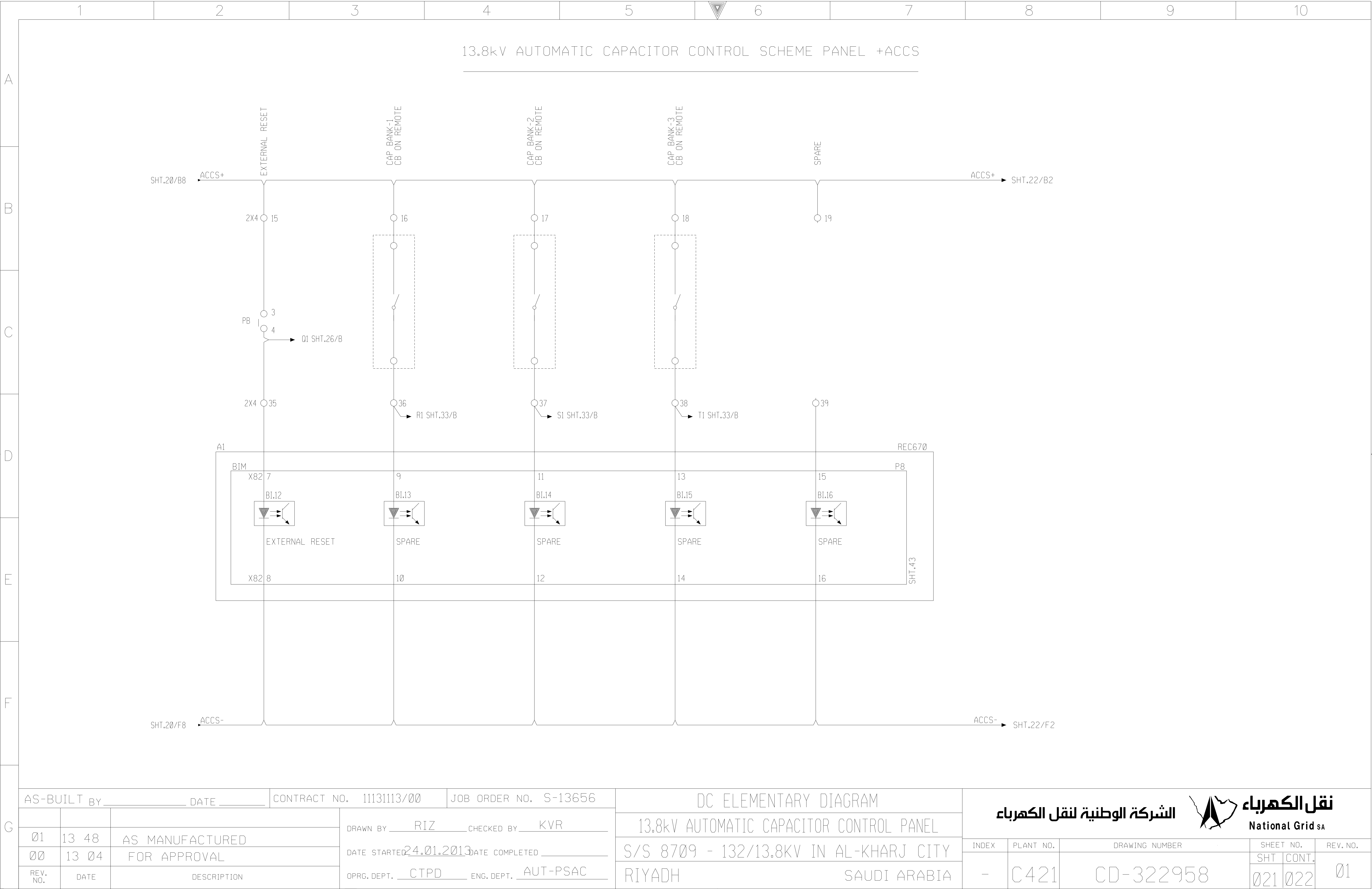
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC ELEMENTARY DIAGRAM		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					
							13.8kV AUTOMATIC CAPACITOR CONTROL PANEL							
01	13 48	AS MANUFACTURED	DRAWN BY RIZ		CHECKED BY KVR		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.	
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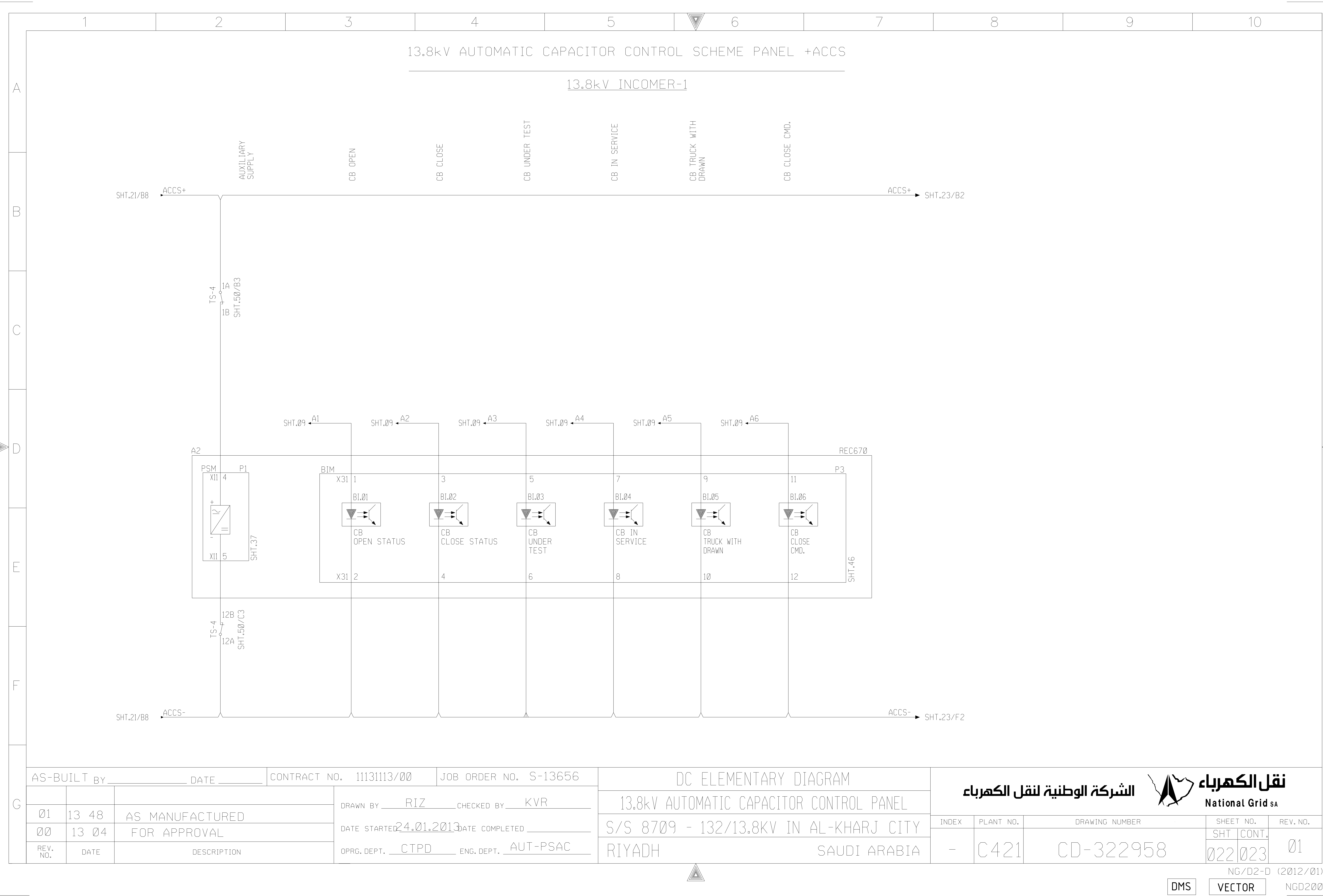
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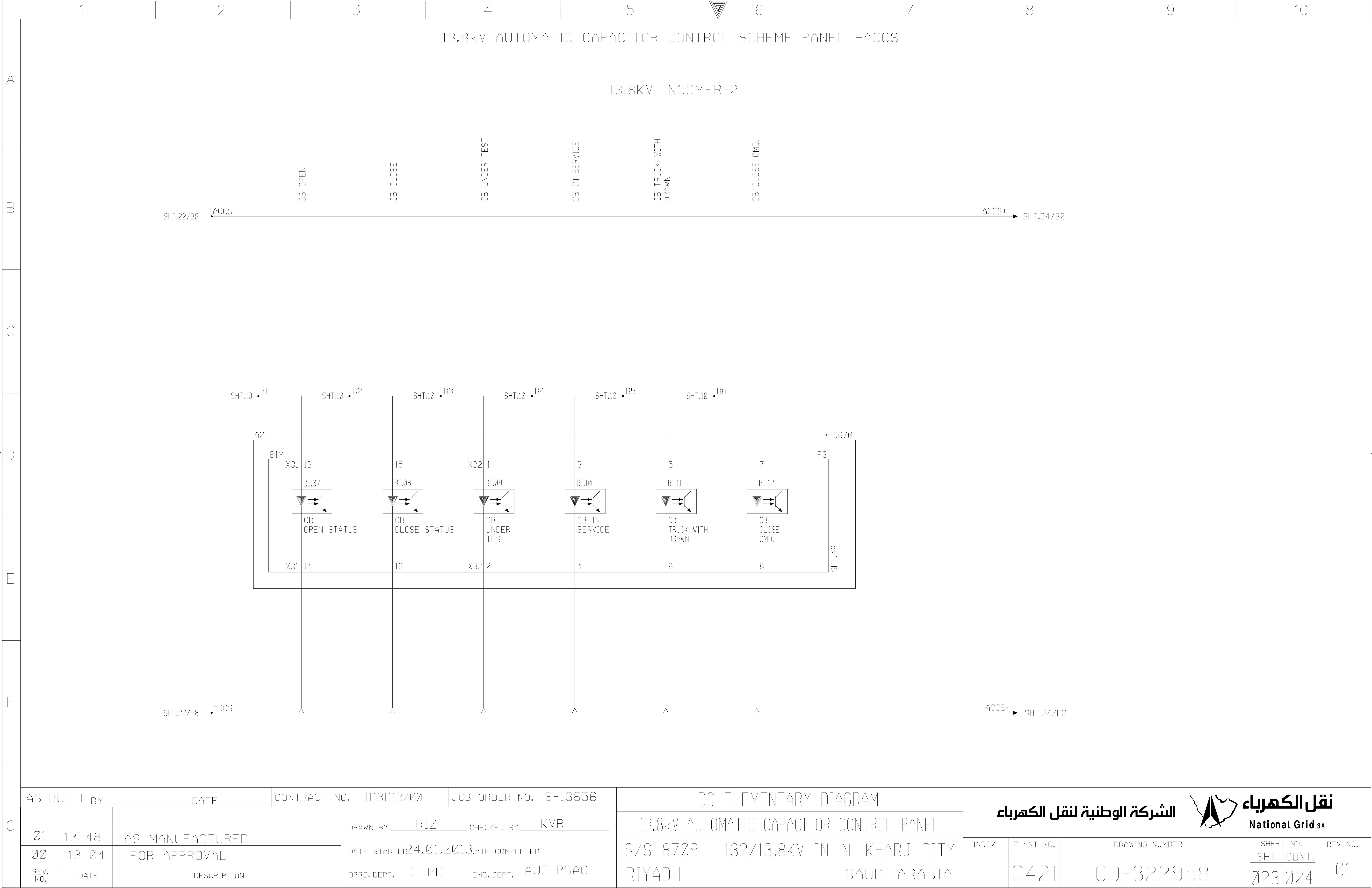
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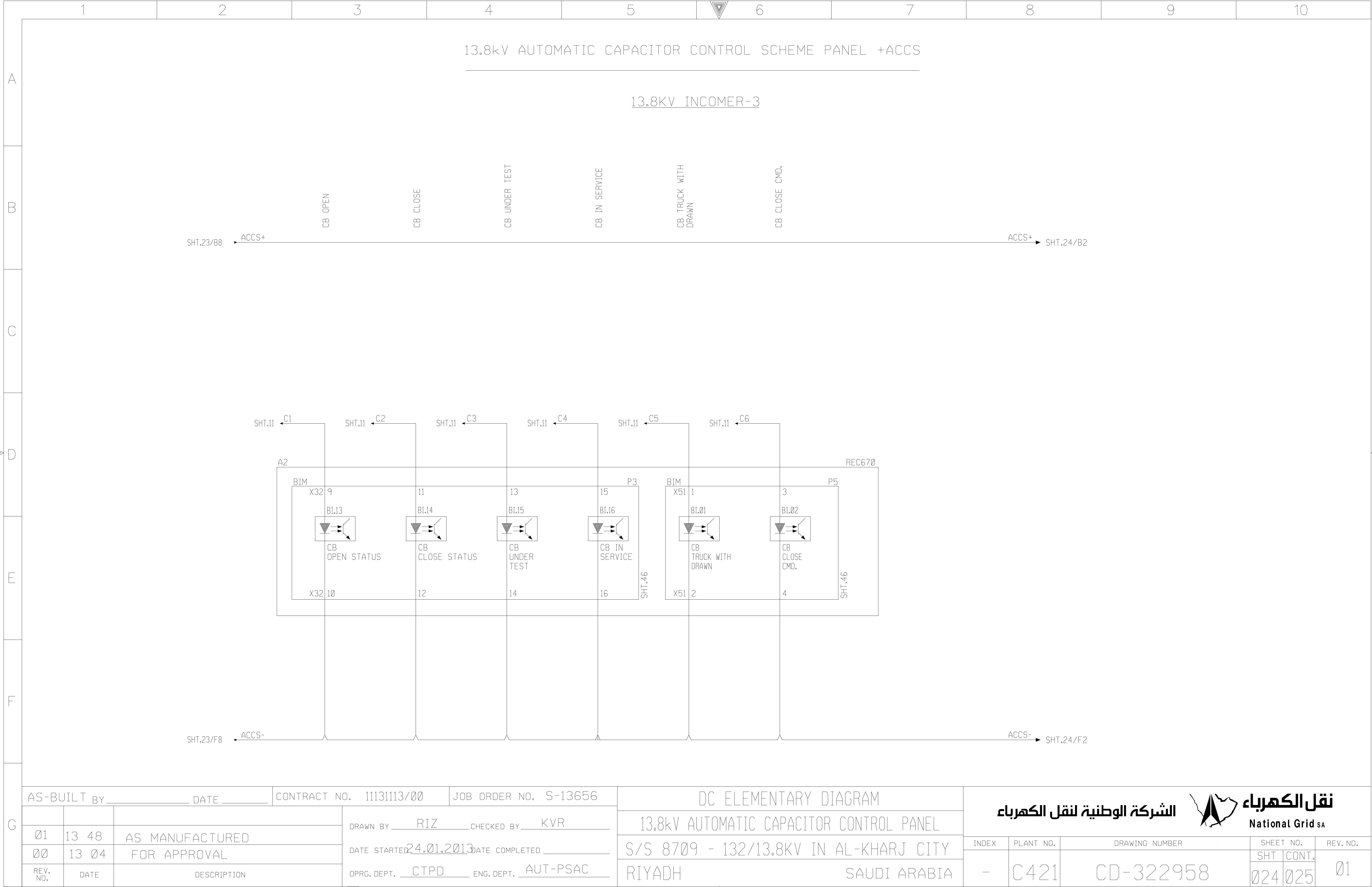
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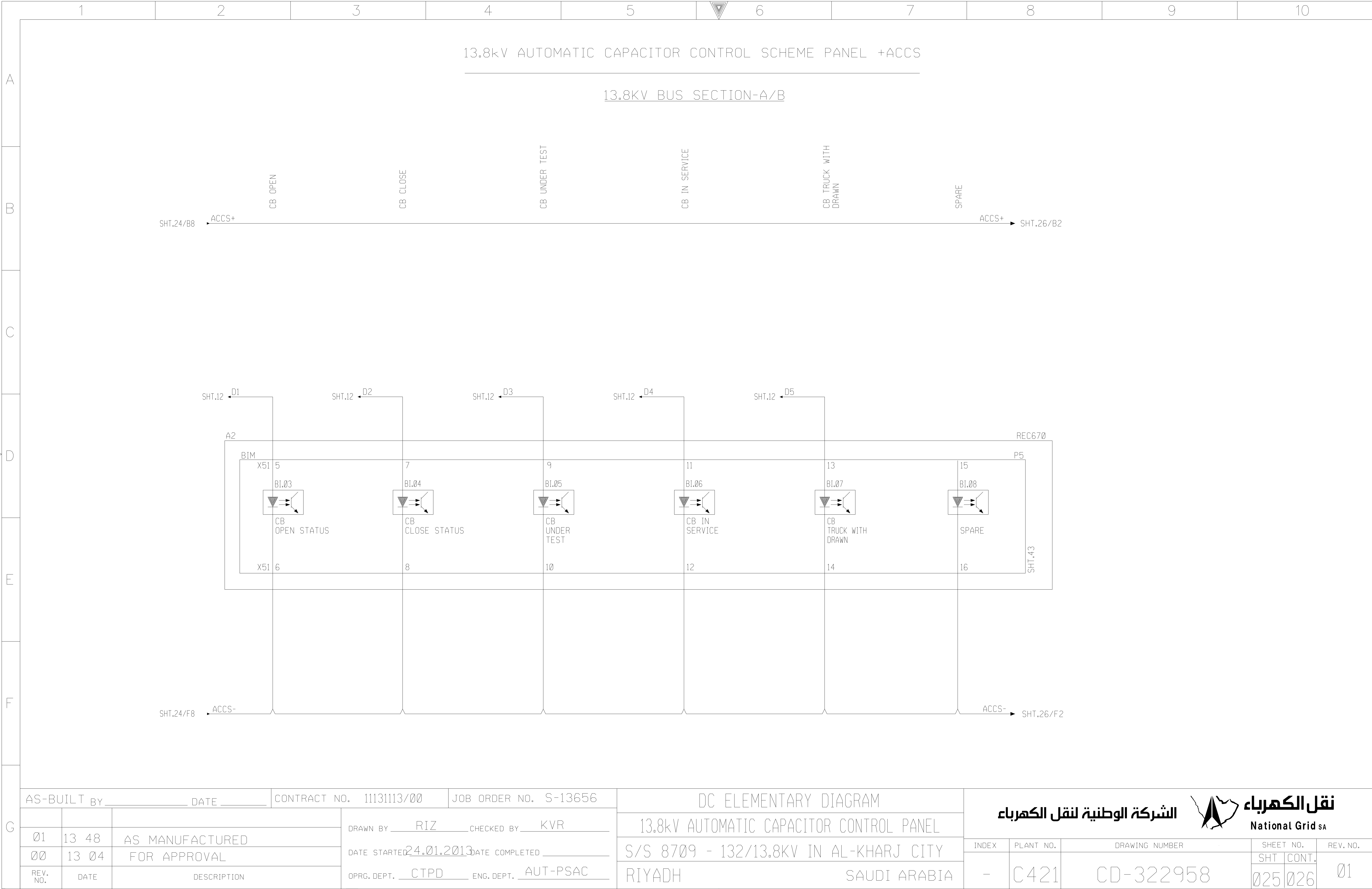
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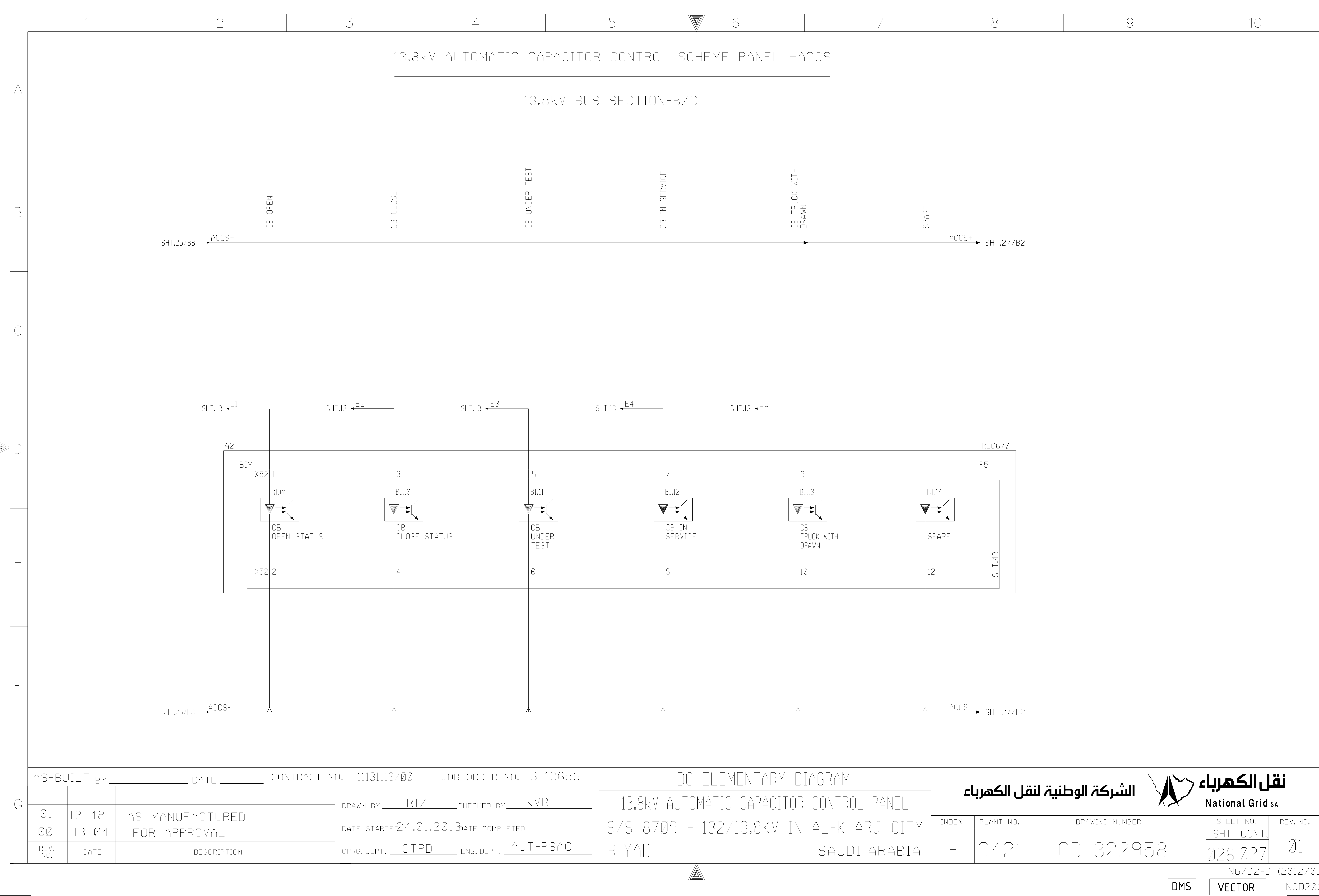
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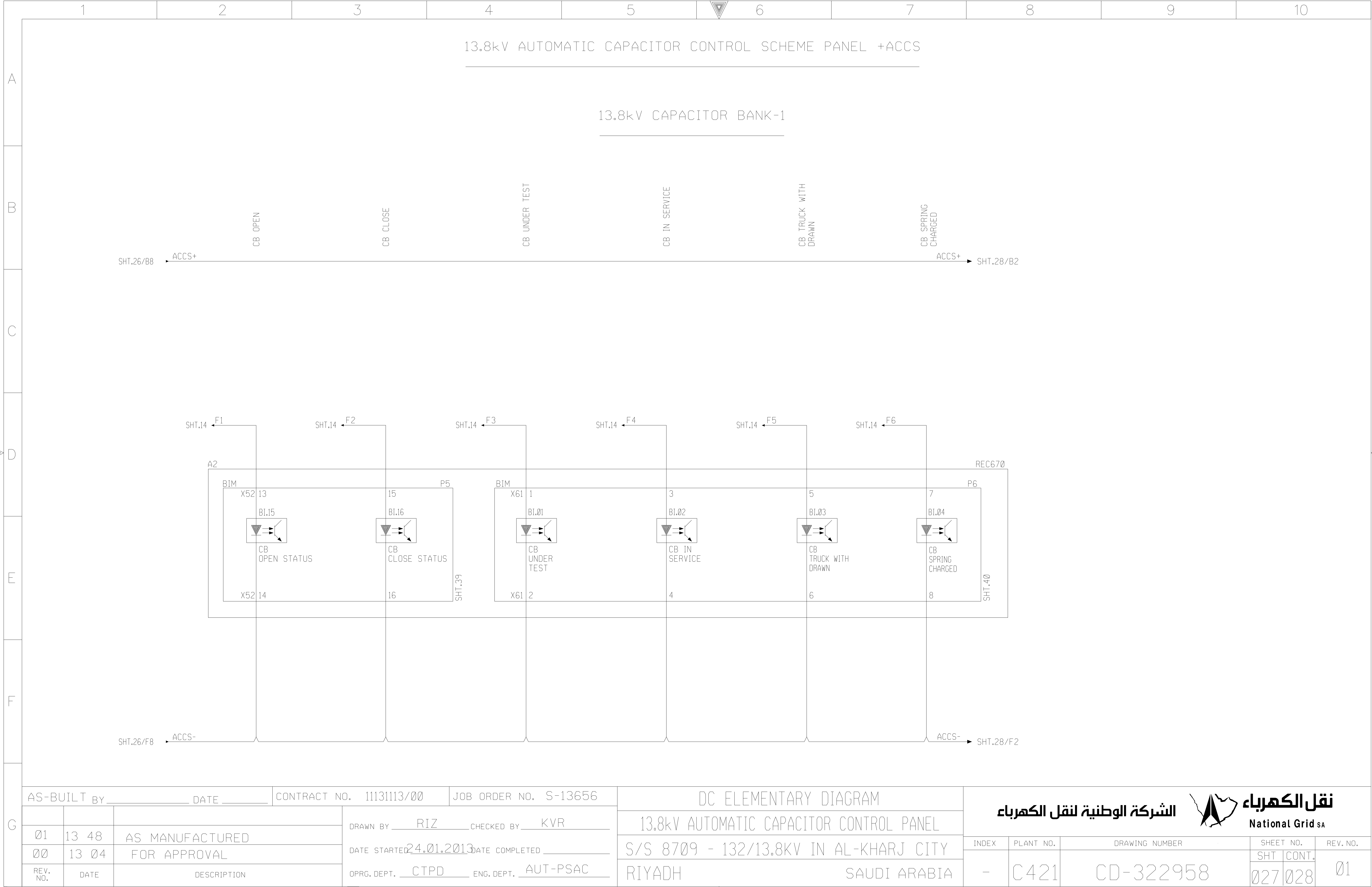
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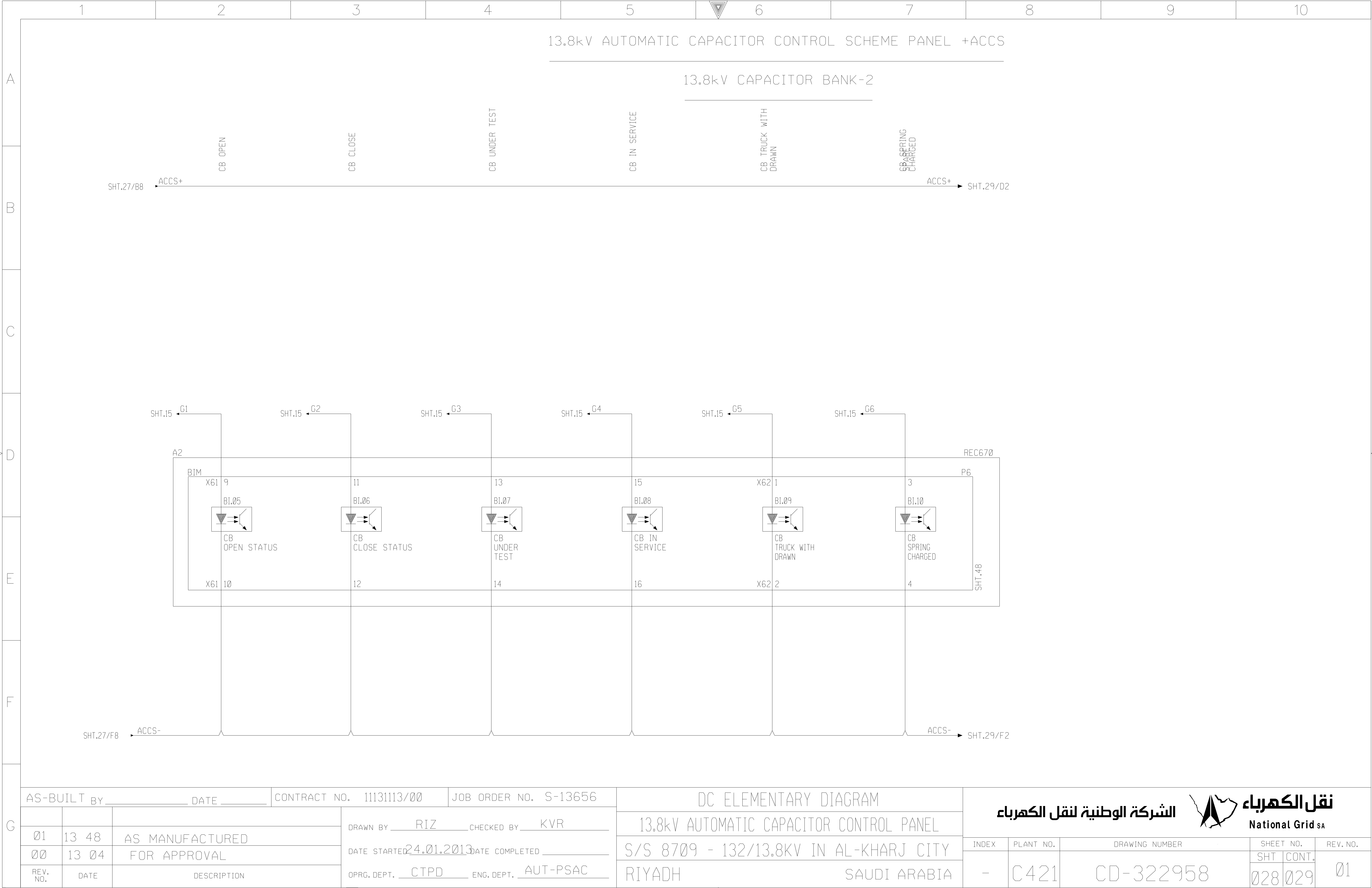
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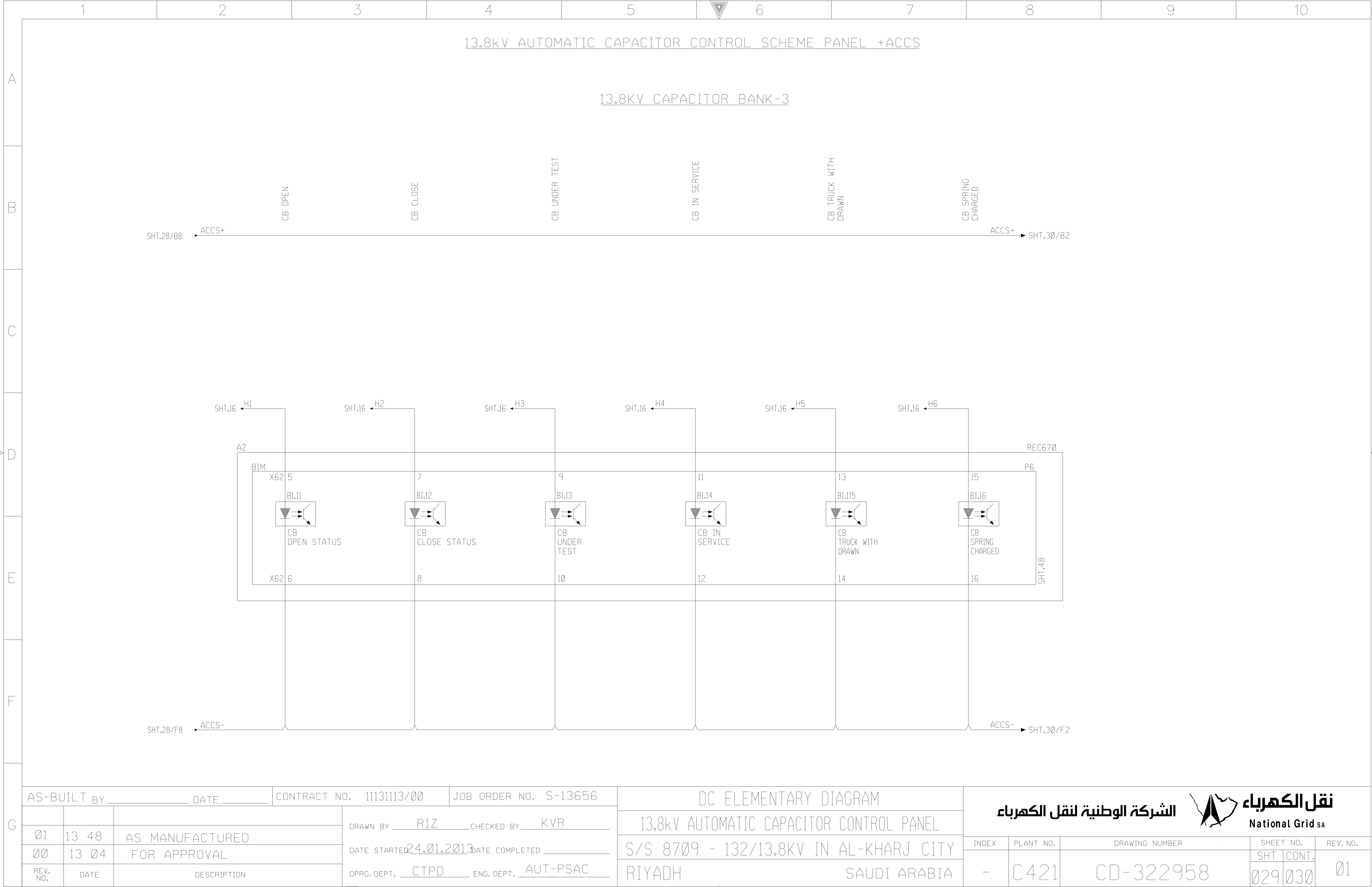
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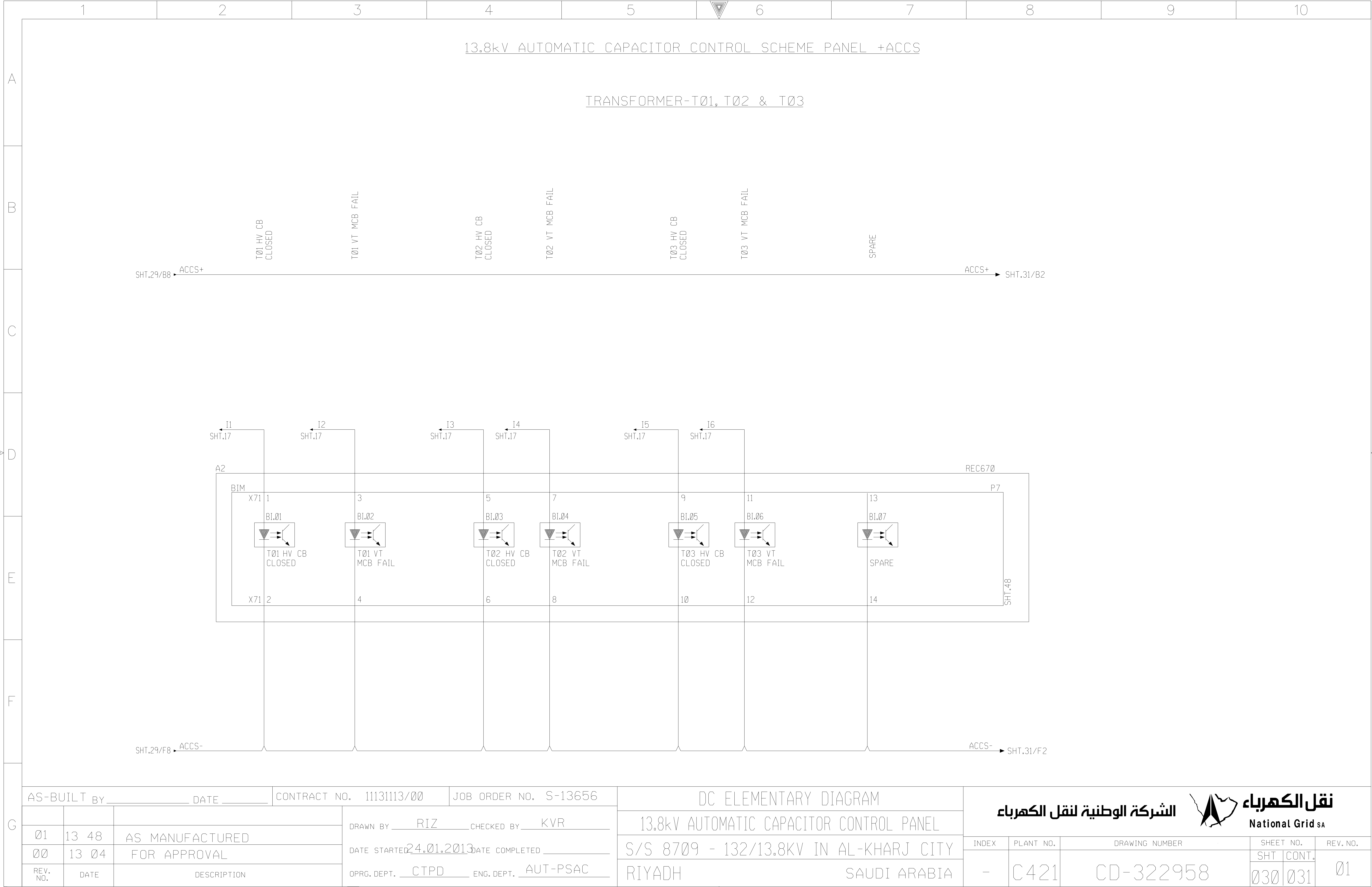


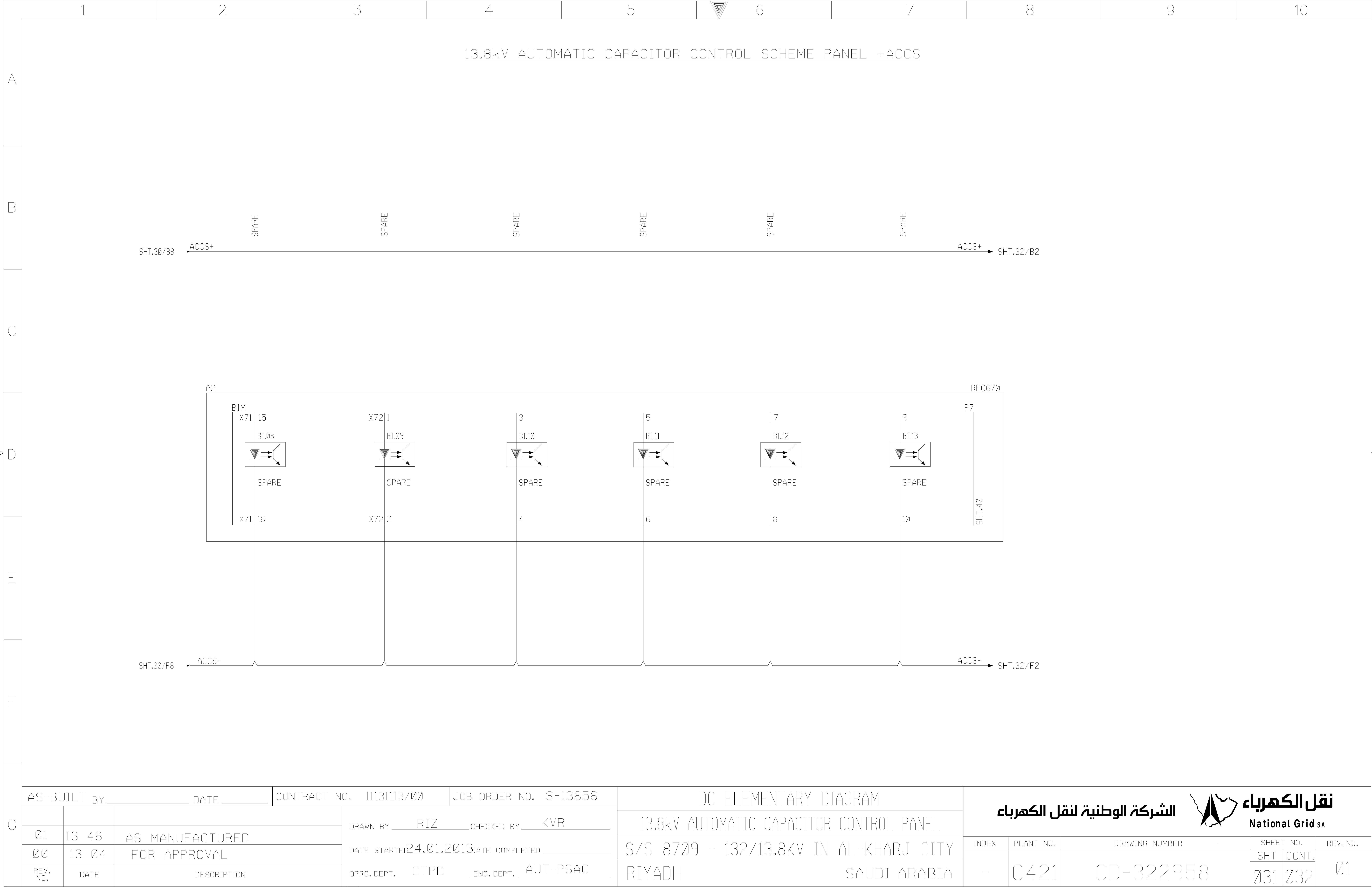


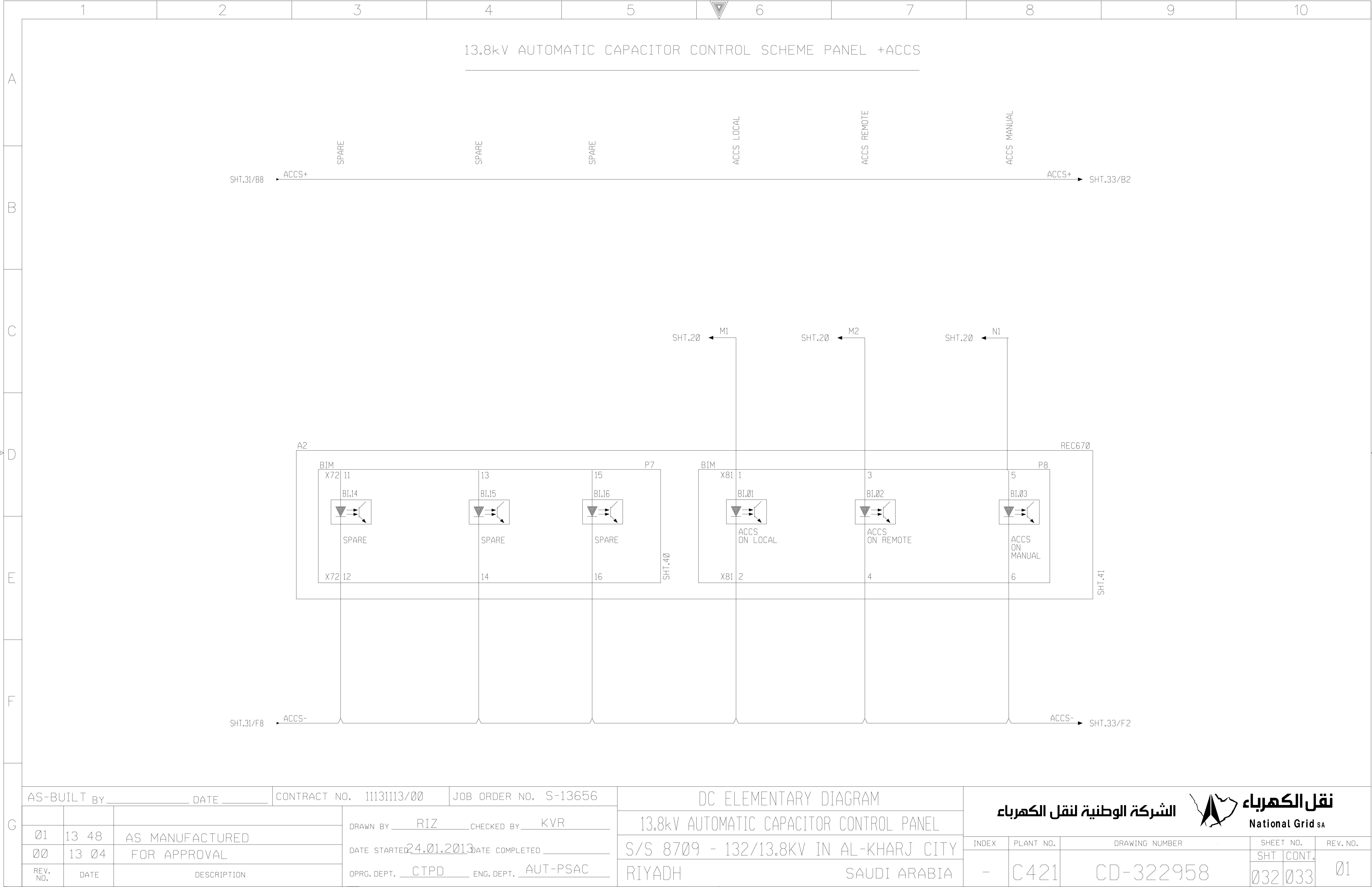


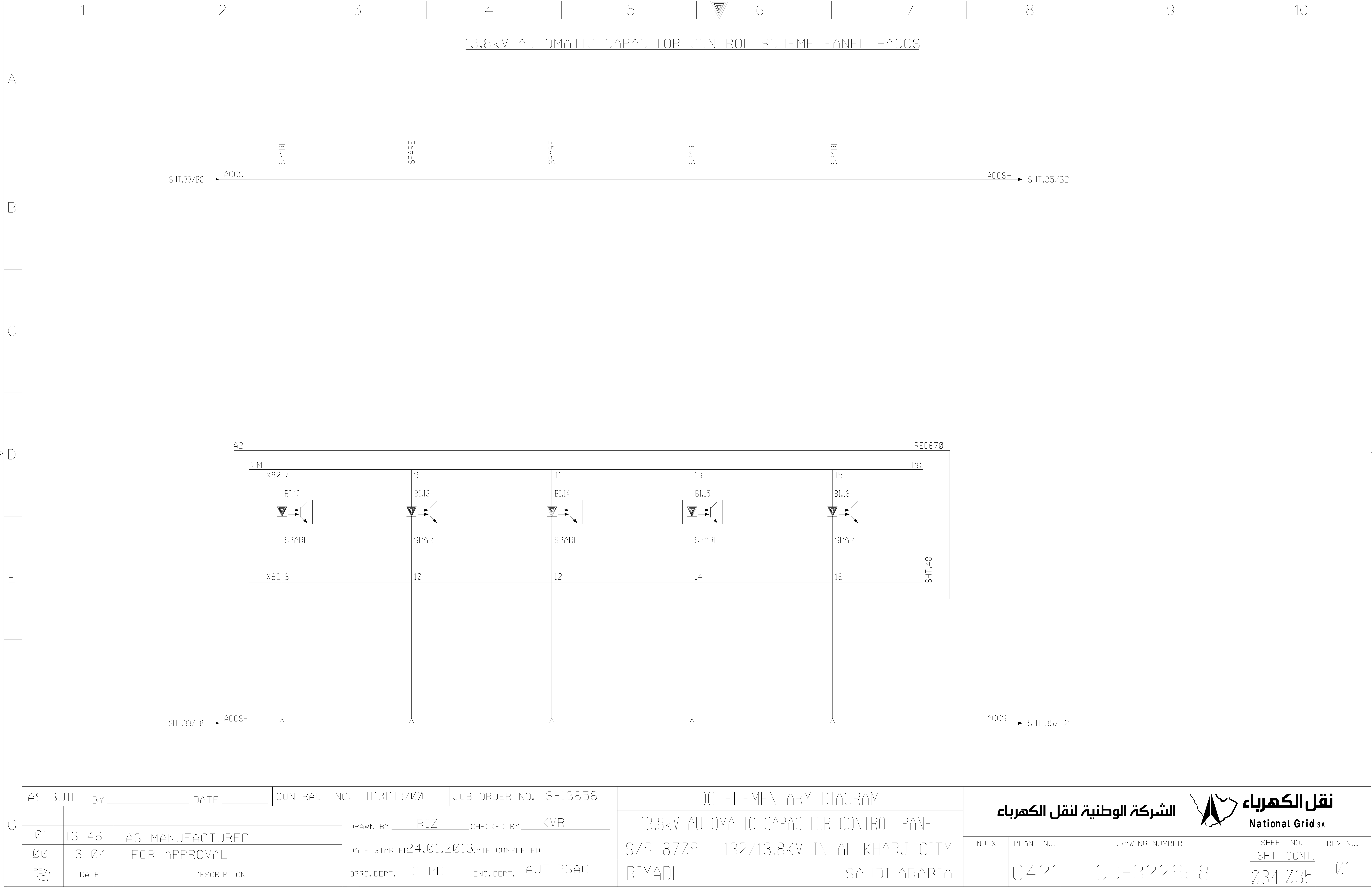








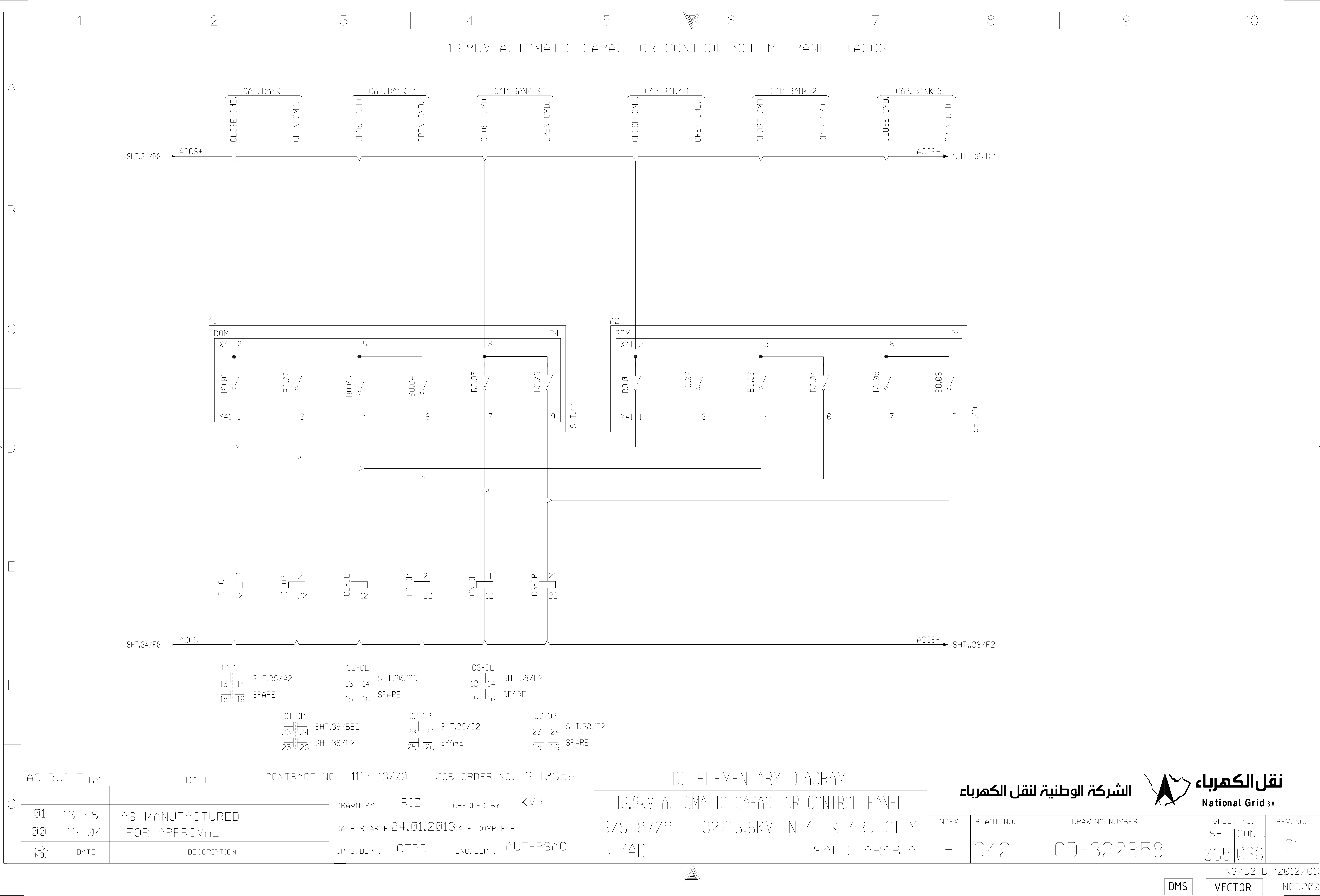




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SHT.34/B8

ACCS+

SHT.,36/B2

ACCS+

A1

BOM

X41

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B0.01

B0.02

B0.03

B0.04

B0.05

B0.06

X41

1

3

4

5

6

7

8

9

P4

SHT.44

A2

BOM

X41

2

B0.01

B0.02

B0.03

B0.04

B0.05

B0.06

X41

1

3

4

5

6

7

8

9

P4

SHT.49

SHT.34/F8

ACCS-

SHT.,36/F2

ACCS-

C1-CL

11

12

C1-OP

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22

C2-CL

11

12

C2-OP

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22

C3-CL

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12

C3-OP

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C1-CL

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SHT.38/A2

SPARE

C2-CL

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SHT.30/2C

SPARE

C3-CL

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14

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16

SHT.38/E2

SPARE

C1-OP

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24

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26

SHT.38/BB2

SHT.38/C2

C2-OP

23

24

25

26

SHT.38/D2

SPARE

C3-OP

23

24

25

26

SHT.38/F2

SPARE

AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

DC ELEMENTARY DIAGRAM

13.8kV AUTOMATIC CAPACITOR CONTROL PANEL

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



National Grid sa

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13 48

AS MANUFACTURED

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FOR APPROVAL

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DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

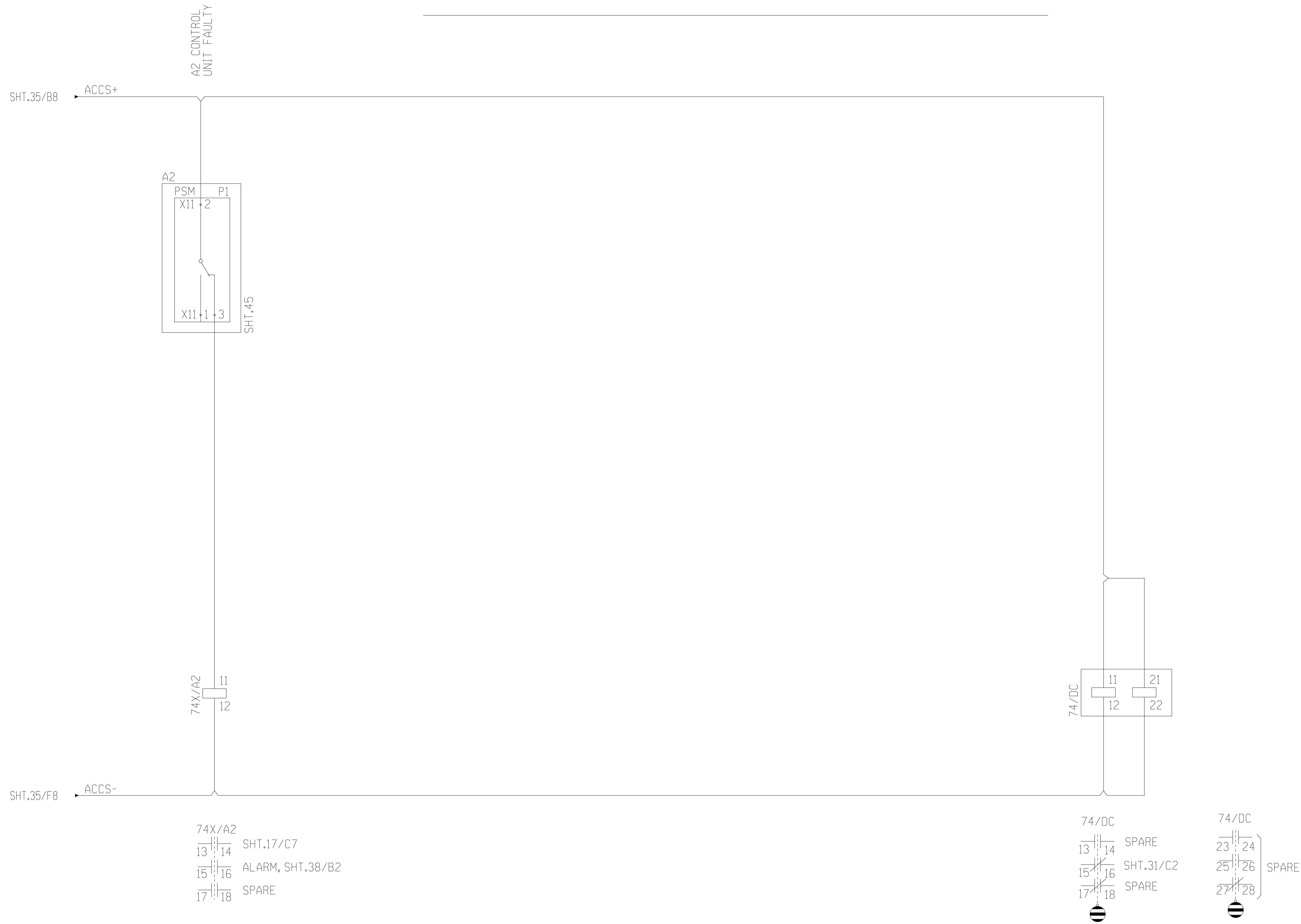
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S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH	SAUDI ARABIA



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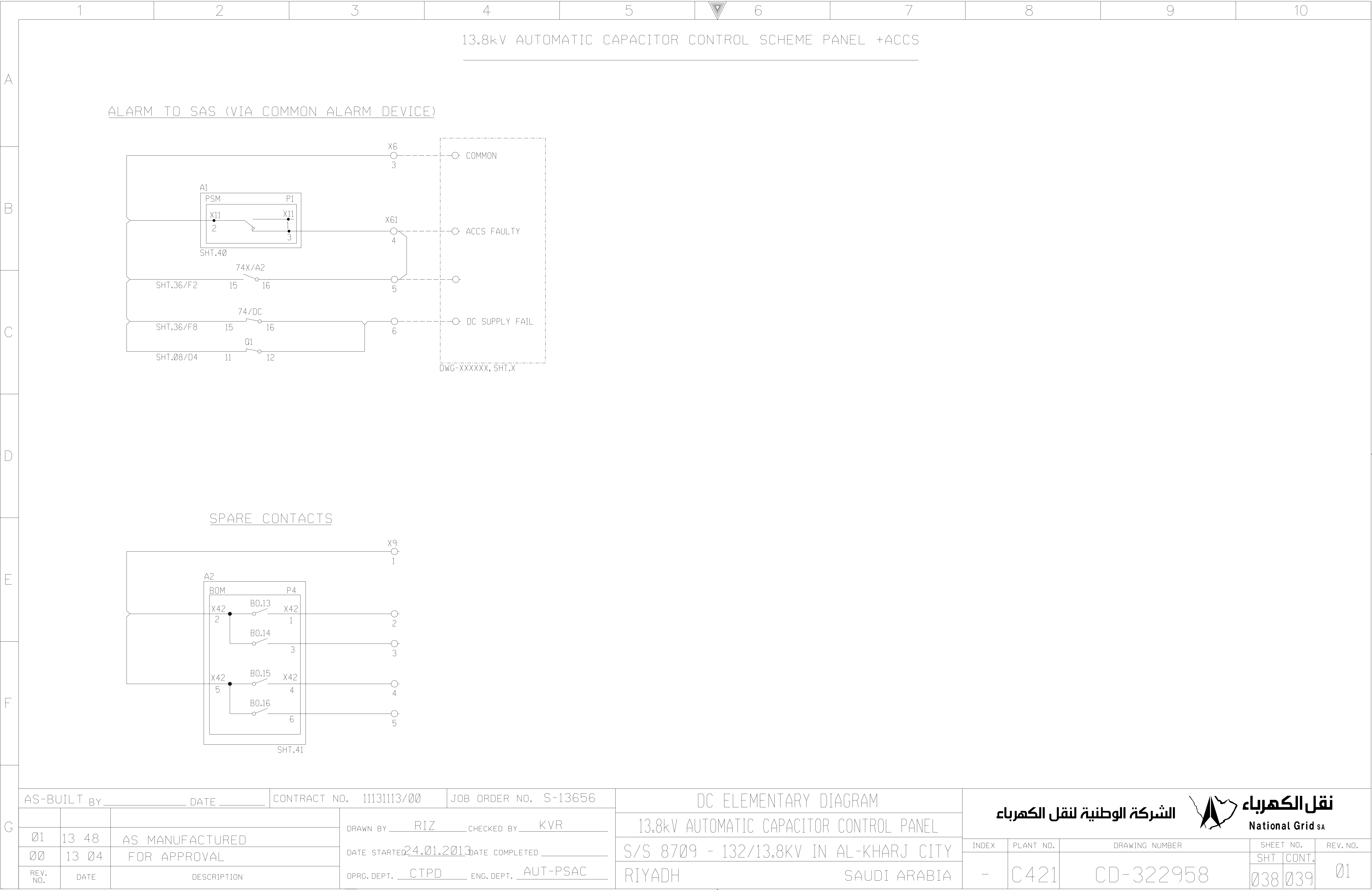
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A	13.8kV AUTOMATIC CAPACITOR CONTROL SCHEME PANEL +ACCS																																																																																																	
B	<div>CAP. BANK-1 CLOSE CMD.</div> <div><div>SHT.35/F2</div><div>C1-CL</div><div>13</div><div>14</div><div>3X4</div><div>1</div><div>2</div><div>3X4</div><div>3</div><div>4</div><div>SWGR-AH01</div><div>DWG-XXXXXX, SHT.X</div></div> <div>CAP. BANK-1 OPEN CMD.</div> <div><div>SHT.35/F3</div><div>C1-OP</div><div>23</div><div>24</div><div>3X4</div><div>3</div><div>4</div><div>SWGR-AH24</div><div>DWG-XXXXXX, SHT.X</div></div>																																																																																																	
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D	<div>CAP. BANK-2 CLOSE CMD.</div> <div><div>SHT.35/F4</div><div>C2-CL</div><div>13</div><div>14</div><div>3X4</div><div>11</div><div>12</div><div>3X4</div><div>13</div><div>14</div><div>SWGR-AH46</div><div>DWG-XXXXXX, SHT.X</div></div> <div>CAP. BANK-2 OPEN CMD.</div> <div><div>SHT.35/F4</div><div>C2-OP</div><div>23</div><div>24</div><div>3X4</div><div>13</div><div>14</div><div>SWGR-AH46</div><div>DWG-XXXXXX, SHT.X</div></div>																																																																																																	
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F	<div>CAP. BANK-3 CLOSE CMD.</div> <div><div>SHT.35/F5</div><div>C3-CL</div><div>13</div><div>14</div><div>3X4</div><div>21</div><div>22</div><div>3X4</div><div>23</div><div>24</div><div>SWGR-AH46</div><div>DWG-XXXXXX, SHT.X</div></div> <div>CAP. BANK-3 OPEN CMD.</div> <div><div>SHT.35/F5</div><div>C3-OP</div><div>23</div><div>24</div><div>3X4</div><div>23</div><div>24</div><div>SWGR-AH46</div><div>DWG-XXXXXX, SHT.X</div></div>																																																																																																	
G	<table><tr><td colspan="3">AS-BUILT BY _____ DATE _____</td><td colspan="2">CONTRACT NO. 11131113/00</td><td colspan="2">JOB ORDER NO. S-13656</td><td colspan="2">DC ELEMENTARY DIAGRAM</td><td colspan="2"><div>الشركة الوطنية لنقل الكهرباء</div><div>نقل الكهرباء</div><div>National Grid sa</div></td></tr><tr><td colspan="3"></td><td colspan="2">DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u></td><td colspan="2">DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____</td><td colspan="2">13.8kV AUTOMATIC CAPACITOR CONTROL PANEL</td><td colspan="2">INDEX</td></tr><tr><td colspan="3">01 13 48 AS MANUFACTURED</td><td colspan="2"></td><td colspan="2"></td><td colspan="2">S/S 8709 - 132/13.8KV IN AL-KHARJ CITY</td><td colspan="2">PLANT NO.</td></tr><tr><td colspan="3">00 13 04 FOR APPROVAL</td><td colspan="2"></td><td colspan="2"></td><td colspan="2">RIYADH SAUDI ARABIA</td><td colspan="2">DRAWING NUMBER</td></tr><tr><td colspan="3">REV. NO. DATE DESCRIPTION</td><td colspan="2">OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">SHEET NO.</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">REV. NO.</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">SHT CONT.</td></tr><tr><td colspan="3"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2"></td><td colspan="2">037 038 01</td></tr></table>										AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC ELEMENTARY DIAGRAM		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		13.8kV AUTOMATIC CAPACITOR CONTROL PANEL		INDEX		01 13 48 AS MANUFACTURED							S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		PLANT NO.		00 13 04 FOR APPROVAL							RIYADH SAUDI ARABIA		DRAWING NUMBER		REV. NO. DATE DESCRIPTION			OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>						SHEET NO.											REV. NO.											SHT CONT.											037 038 01	
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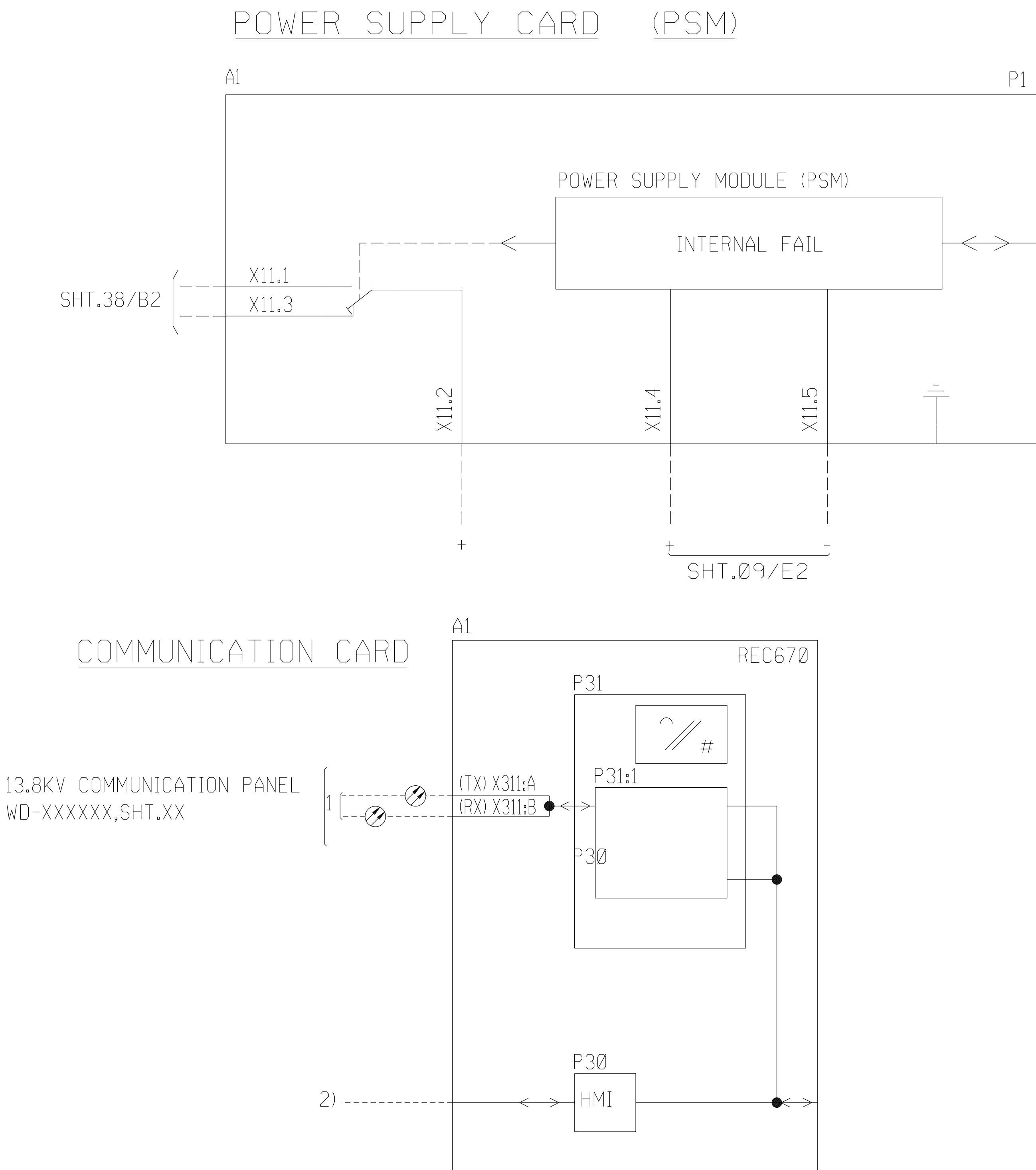
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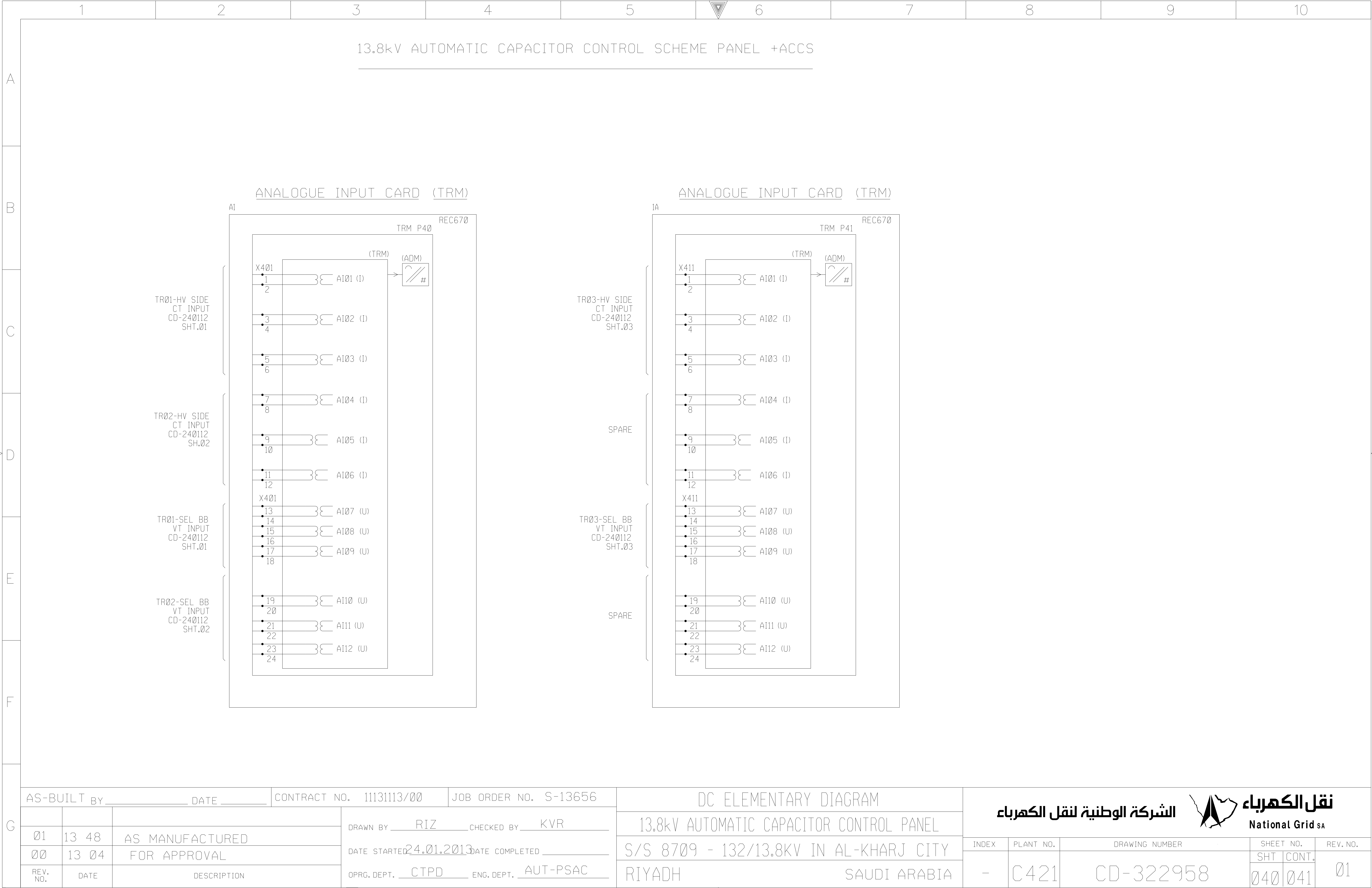
13.8kV AUTOMATIC CAPACITOR CONTROL SCHEME PANEL +ACCS



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00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013 DATE COMPLETED _____	
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DC ELEMENTARY DIAGRAM	
13.8kV AUTOMATIC CAPACITOR CONTROL PANEL	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء		
				National Grid sa		
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AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

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13 48

AS MANUFACTURED

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13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR

DATE STARTED 24.01.2013 DATE COMPLETED _____

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

DC ELEMENTARY DIAGRAM

13.8kV AUTOMATIC CAPACITOR CONTROL PANEL

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX

PLANT NO. C421

DRAWING NUMBER CD-322958

SHEET SHT 040

CONT. CONT. 041

REV. NO. 01

NG/D2-D (2012/01)

DMS

VECTOR

NGD200

NO REPRODUCTION IN FULL OR IN PART SHALL BE OBTAINED FROM THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF ITS OWNER.

National Grid SA

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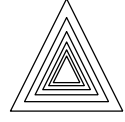
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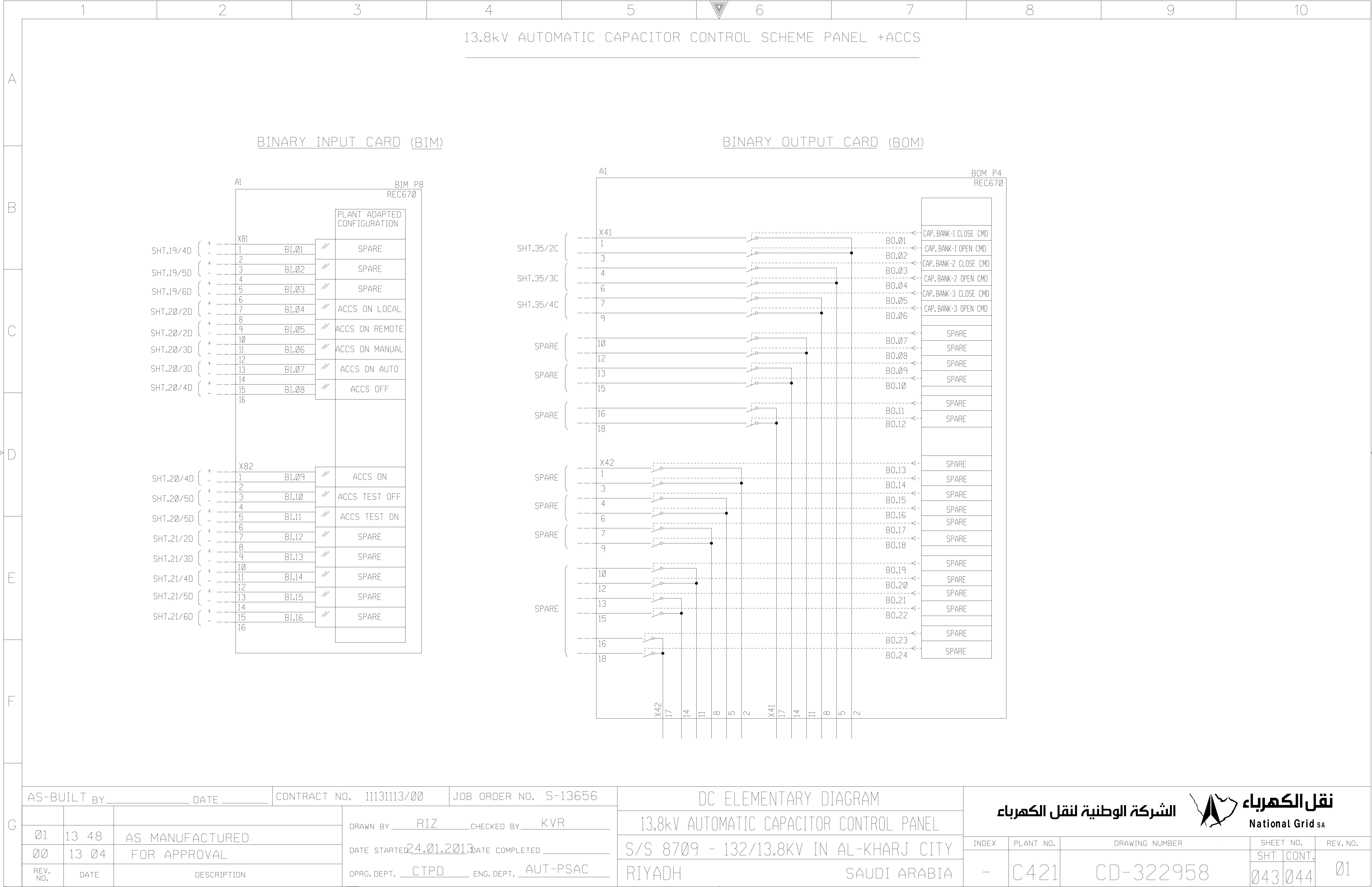


DMS

VECTOR

NG/D2-D (2012/01)

NGD200



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A

B

C

D

E

F

G

13.8kV AUTOMATIC CAPACITOR CONTROL SCHEME PANEL +ACCS

POWER SUPPLY CARD (PSM)

A2

P1

POWER SUPPLY MODULE (PSM)

INTERNAL FAIL

SHT.36/C3

X11.1

X11.3

X11.2

X11.4

X11.5

SHT.36/C3

COMMUNICATION CARD

A2

REC670

P31

P31:1

P31:1

(TX) X311:A

(RX) X311:B

P30

HMI

2)

13.8KV COMMUNICATION PANEL

WD-XXXX,SHT,XX

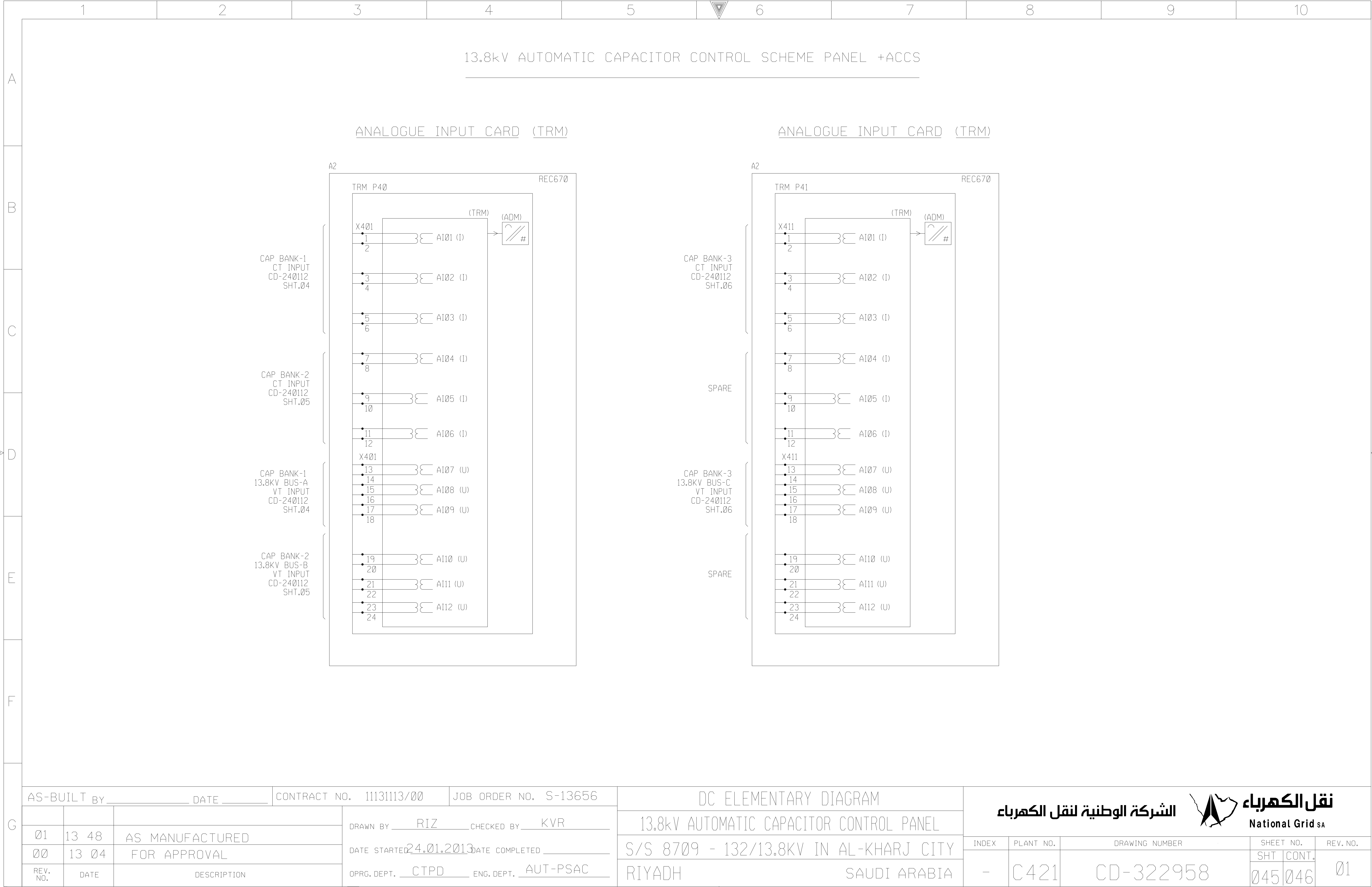
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NOTE

1. REAR COMMUNICATION PORT IEC 61850, ST-CONNECTOR

2. FRONT COMMUNICATION PORT, ETHERNET, RJ45 CONNECTOR

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC ELEMENTARY DIAGRAM		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>						
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01	13 48	AS MANUFACTURED	DATE STARTED 24.01.2013		DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
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REV. NO.	DATE	DESCRIPTION											044	045	

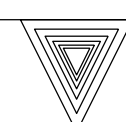


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A2		BIM P3 REC670	
			PLANT ADAPTED CONFIGURATION
SHT.22/3D	(+ --- 1	BI.01	// AH13 OPEN STATUS
SHT.22/3D	(+ --- 2	BI.02	// AH13 CLOSE STATUS
SHT.22/4D	(+ --- 3	BI.03	// AH13 UNDER TEST
SHT.22/5D	(+ --- 4	BI.04	// AH13 IN SERVICE
SHT.22/5D	(+ --- 5	BI.05	// AH13 WITH DRAWN
SHT.22/6D	(+ --- 6	BI.06	// AH13 CLOSE CMD
SHT.23/2D	(+ --- 7	BI.07	// AH12 OPEN STATUS
SHT.23/2D	(+ --- 8	BI.08	// AH12 CLOSE STATUS
		16	
		X32	
SHT.23/3D	(+ --- 1	BI.09	// AH12 UNDER TEST
SHT.23/4D	(+ --- 2	BI.10	// AH12 IN SERVICE
SHT.23/4D	(+ --- 3	BI.11	// AH12 WITHDRAWN
SHT.23/5D	(+ --- 4	BI.12	// AH12 CLOSE CMD
SHT.24/2D	(+ --- 5	BI.13	// AH36 OPEN STATUS
SHT.24/2D	(+ --- 6	BI.14	// AH13 CLOSE STATUS
SHT.24/3D	(+ --- 7	BI.15	// AH36 UNDER TEST
SHT.24/4D	(+ --- 8	BI.16	// AH36 IN SERVICE
		16	

A2		BIM P5 REC670	
			PLANT ADAPTED CONFIGURATION
SHT.24/4D	(+ --- 1	BI.01	// AH36 WITH DRAWN
SHT.24/5D	(+ --- 2	BI.02	// AH36 CLOSE CMD
SHT.25/2D	(+ --- 3	BI.03	// AH120 OPEN STATUS
SHT.25/3D	(+ --- 4	BI.04	// AH120 CLOSE STATUS
SHT.25/4D	(+ --- 5	BI.05	// AH120 UNDER TEST
SHT.25/5D	(+ --- 6	BI.06	// AH120 IN SERVICE
SHT.25/6D	(+ --- 7	BI.07	// AH120 WITH DRAWN
SHT.25/7D	(+ --- 8	BI.08	// SPARE
		16	
		X52	
SHT.26/2D	(+ --- 1	BI.09	// AH320 OPEN STATUS
SHT.26/3D	(+ --- 2	BI.10	// AH320 CLOSE STATUS
SHT.26/4D	(+ --- 3	BI.11	// AH320 UNDER TEST
SHT.26/5D	(+ --- 4	BI.12	// AH320 IN SERVICE
SHT.26/6D	(+ --- 5	BI.13	// AH320 WITH DRAWN
SHT.26/6D	(+ --- 6	BI.14	// SPARE
SHT.27/2D	(+ --- 7	BI.15	// AH01 OPEN STATUS
SHT.27/5D	(+ --- 8	BI.16	// AH01 CLOSE STATUS
		16	



13.8kV AUTOMATIC CAPACITOR CONTROL SCHEME PANEL +ACCS

BINARY INPUT CARD (BIM)

BIM P6
REC670

		A2		PLANT ADAPTED CONFIGURATION	
SHT.27/40	<div><div>+</div><div>---</div><div>---</div></div>	X61		//	AH01 UNDER TEST
		1	BI.01		
		2			
SHT.27/50	<div><div>+</div><div>---</div><div>---</div></div>	3	BI.02	//	AH01 IN SERVICE
		4			
SHT.27/60	<div><div>+</div><div>---</div><div>---</div></div>	5	BI.03	//	AH01 WITH DRAWN
		6			
SHT.27/70	<div><div>+</div><div>---</div><div>---</div></div>	7	BI.04	//	AH01 CB SPRING CHARGED
		8			
SHT.28/20	<div><div>+</div><div>---</div><div>---</div></div>	9	BI.05	//	AH24 OPEN STATUS
		10			
SHT.28/30	<div><div>+</div><div>---</div><div>---</div></div>	11	BI.06	//	AH24 CLOSE STATUS
		12			
SHT.28/40	<div><div>+</div><div>---</div><div>---</div></div>	13	BI.07	//	AH24 UNDER TEST
		14			
SHT.28/50	<div><div>+</div><div>---</div><div>---</div></div>	15	BI.08	//	AH24 IN SERVICE
		16			
SHT.28/60	<div><div>+</div><div>---</div><div>---</div></div>	X62		//	AH24 WITH DRAWN
		1	BI.09		
		2			
SHT.28/70	<div><div>+</div><div>---</div><div>---</div></div>	3	BI.10	//	AH24 CB SPRING CHARGED
		4			
SHT.29/20	<div><div>+</div><div>---</div><div>---</div></div>	5	BI.11	//	AH46 OPEN STATUS
		6			
SHT.29/30	<div><div>+</div><div>---</div><div>---</div></div>	7	BI.12	//	AH46 CLOSE STATUS
		8			
SHT.29/40	<div><div>+</div><div>---</div><div>---</div></div>	9	BI.13	//	AH46 UNDER TEST
		10			
SHT.29/50	<div><div>+</div><div>---</div><div>---</div></div>	11	BI.14	//	AH46 IN SERVICE
		12			
SHT.29/60	<div><div>+</div><div>---</div><div>---</div></div>	13	BI.15	//	AH46 WITH DRAWN
		14			
SHT.29/70	<div><div>+</div><div>---</div><div>---</div></div>	15	BI.16	//	AH46 CB SPRING CHARGED
		16			

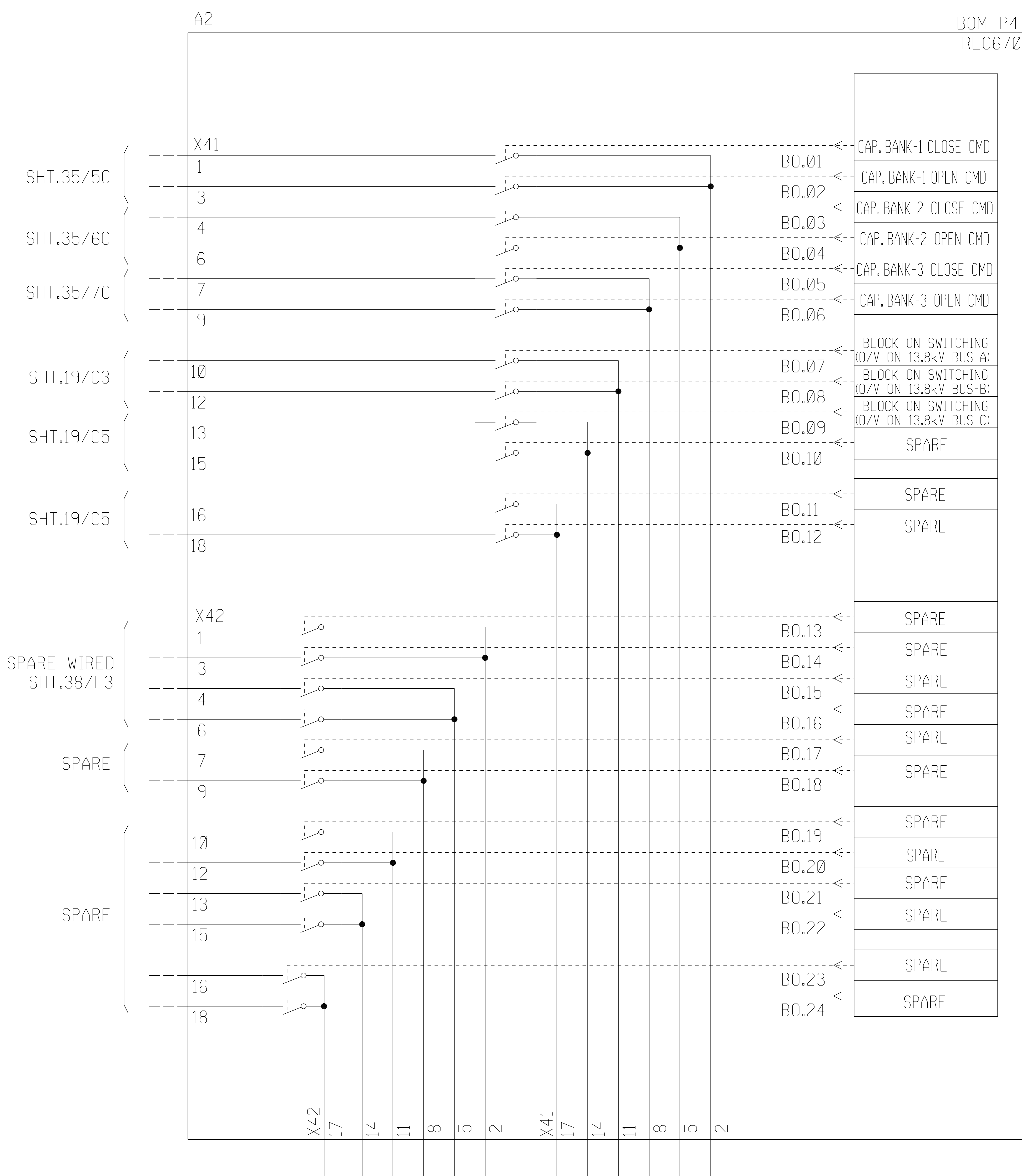
		A2		BIM P7 REC670	
				PLANT ADAPTED CONFIGURATION	
		X71			
SHT.30/2D	{ + - - -	1	BI.01	//	T01 505 HV CB CLOSED
SHT.30/2D	{ - - - -	2			
SHT.30/2D	{ + - - -	3	BI.02	//	T01 505 VT MCB FAIL
SHT.30/3D	{ - - - -	4			
SHT.30/3D	{ + - - -	5	BI.03	//	T02 105 HV CB CLOSED
SHT.30/4D	{ - - - -	6			
SHT.30/4D	{ + - - -	7	BI.04	//	T02 105 VT MCB FAIL
SHT.30/5D	{ - - - -	8			
SHT.30/5D	{ + - - -	9	BI.05	//	T03 405 HV CB CLOSED
SHT.30/5D	{ - - - -	10			
SHT.30/5D	{ + - - -	11	BI.06	//	T03 405 VT MCB FAIL
SHT.30/6D	{ - - - -	12			
SHT.30/6D	{ + - - -	13	BI.07	//	SPARE
SHT.31/2D	{ - - - -	14			
SHT.31/2D	{ + - - -	15	BI.08	//	SPARE
		16			
		X72			
SHT.31/3D	{ + - - -	1	BI.09	//	SPARE
SHT.31/3D	{ - - - -	2			
SHT.31/4D	{ + - - -	3	BI.10	//	SPARE
SHT.31/4D	{ - - - -	4			
SHT.31/5D	{ + - - -	5	BI.11	//	SPARE
SHT.31/5D	{ - - - -	6			
SHT.31/5D	{ + - - -	7	BI.12	//	SPARE
SHT.31/5D	{ - - - -	8			
SHT.31/6D	{ + - - -	9	BI.13	//	SPARE
SHT.31/6D	{ - - - -	10			
SHT.32/2D	{ + - - -	11	BI.14	//	SPARE
SHT.32/2D	{ - - - -	12			
SHT.32/3D	{ + - - -	13	BI.15	//	SPARE
SHT.32/3D	{ - - - -	14			
SHT.32/3D	{ + - - -	15	BI.16	//	SPARE
SHT.32/3D	{ - - - -	16			

AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 48	AS MANUFACTURED		DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>	
00	13 04	FOR APPROVAL		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>	

DC ELEMENTARY DIAGRAM	
13.8KV AUTOMATIC CAPACITOR CONTROL PANEL	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH	SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء			 نقل الكهرباء National Grid sa		
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322958	SHT	CONT.	01
			047	048	

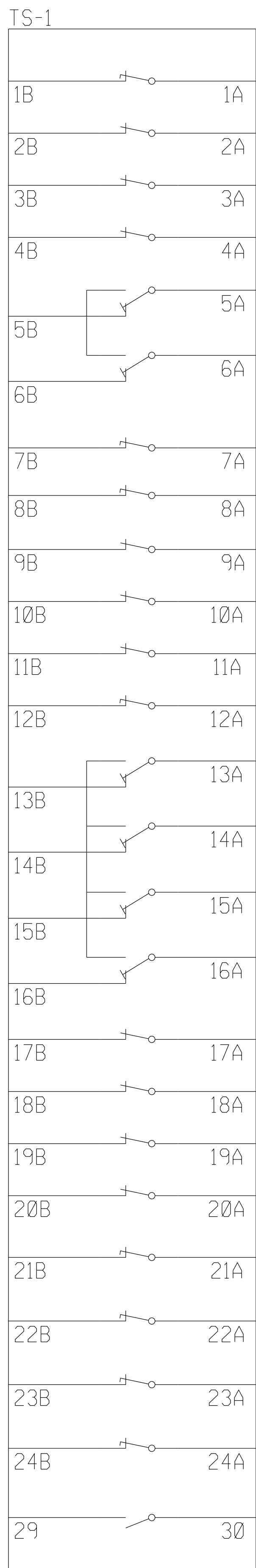
BINARY OUTPUT CARD (BOM)

SAUDI ARABIA

 **نقل الكهرباء**
National Grid SA

NG/D2-D (2012/01)

13.8kV AUTOMATIC CAPACITOR CONTROL SCHEME PANEL +ACCS



AUX. SUPPLY, SH.09/C2

SPARE

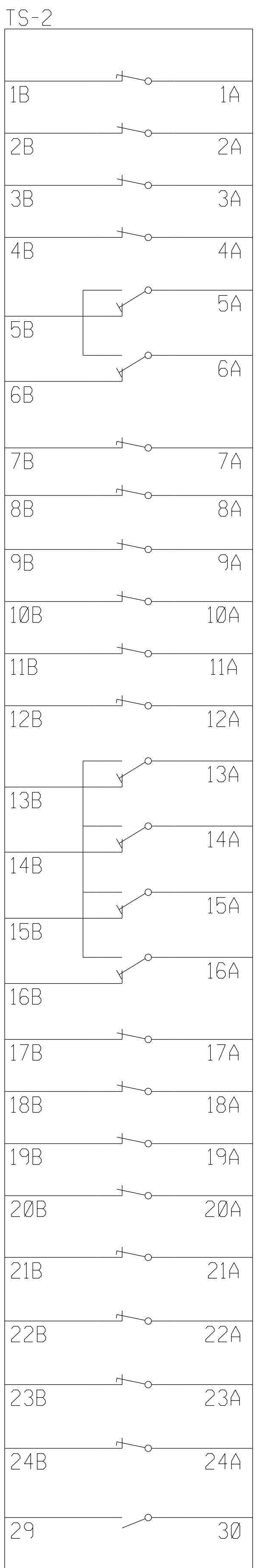
AUX. SUPPLY, SHT.09/F2

TR01-HV SIDE
CT INPUT
CD-240112
SHT.01

TR02-SEL BB
VT INPUT
CD-240112
SHT.01

SPARE

RK 926 315-AK



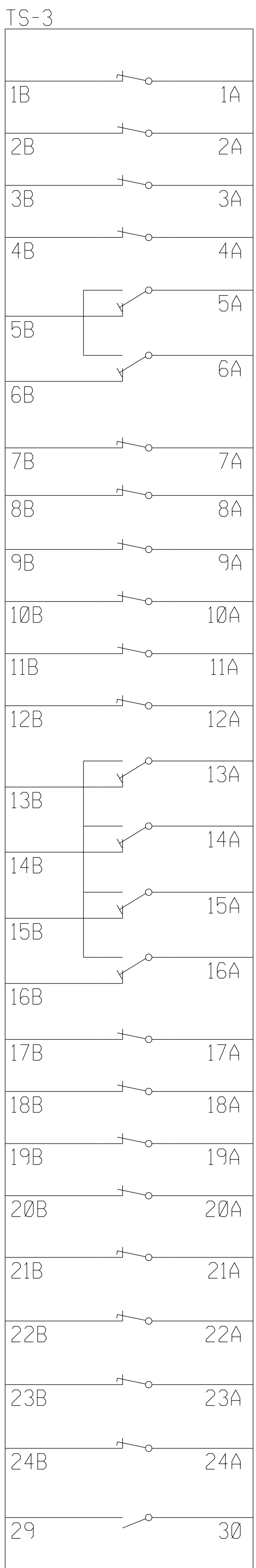
SPARE

TR02-HV SIDE
CT INPUT
CD-240112
SHT.02

TR02-SEL BB
VT INPUT
CD-240112
SHT.02

SPARE

RK 926 315-AK



SPARE

TR03-HV SIDE
CT INPUT
CD-240112
SHT.03


TR03-SEL BB
VT INPUT
CD-240112
SHT.03

SPARE

RK 926 315-AK

AS-BUILT BY _____		DATE _____	CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656	
01	13 48	AS MANUFACTURED	DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>			
00	13 04	FOR APPROVAL	DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____			
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>			

DC ELEMENTARY DIAGRAM	
13.8kV AUTOMATIC CAPACITOR CONTROL PANEL	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH SAUDI ARABIA	

الشركة الوطنية لنقل الكهرباء				نقل الكهرباء	
				National Grid sa	
INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
-	C421	CD-322958		SHT	CONT.
				049	050
				01	

DMS

VECTOR

NG/D2-D (2012/01)

NGD200

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13.8kV AUTOMATIC CAPACITOR CONTROL SCHEME PANEL +ACCS

TS-4

1B1A

2B2A

3B3A

4B4A

5B5A

6B6A

7B7A

8B8A

9B9A

10B10A

11B11A

12B12A

13B13A

14B14A

15B15A

16B16A

17B17A

18B18A

19B19A

20B20A

21B21A

22B22A

23B23A

24B24A

2930

AUX SUPPLY, SHT.22/C2

SPARE

AUX. SUPPLY, SHT.22/F2

CAP. BANK-1
CT INPUT
CD=-240112
SHT.04

CAP. BANK-1
13.8kV BUS-A
VT INPUT
CD=-240112
SHT.04

SPARE

RK 926 315-AK

TS-5

1B1A

2B2A

3B3A

4B4A

5B5A

6B6A

7B7A

8B8A

9B9A

10B10A

11B11A

12B12A

13B13A

14B14A

15B15A

16B16A

17B17A

18B18A

19B19A

20B20A

21B21A

22B22A

23B23A

24B24A

2930

SPARE

CAP. BANK-2
CT INPUT
CD=-240112
SHT.05

CAP. BANK-2
13.8kV BUS-A
VT INPUT
CD=-240112
SHT.05

SPARE

RK 926 315-AK

TS-6

1B1A

2B2A

3B3A

4B4A

5B5A

6B6A

7B7A

8B8A

9B9A

10B10A

11B11A

12B12A

13B13A

14B14A

15B15A

16B16A

17B17A

18B18A

19B19A

20B20A

21B21A

22B22A

23B23A

24B24A

2930

SPARE

CAP. BANK-3
CT INPUT
CD=-240112
SHT.06

CAP. BANK-3
13.8kV BUS-A
VT INPUT
CD=-240112
SHT.06

SPARE

RK 926 315-AK

AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

DC ELEMENTARY DIAGRAM

13.8kV AUTOMATIC CAPACITOR CONTROL PANEL

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

REV. NO.

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C421

CD-322958

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AS MANUFACTURED

DRAWN BY RIZ CHECKED BY KVR

DATE STARTED 24.01.2013 DATE COMPLETED

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

NG/D2-D (2012/01)

DMS

VECTOR

NGD200

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INTERNAL
REFERENCE

017/B3

017/B4

017/B5

017/B6

017/B6

SPARE

018/B2

018/B3

018/B4

018/B5

018/B6

018/B7

SPARE

SPARE

021/B2

021/B3

021/B4

021/B6

021/B6

SPARE

017/D3

017/D4

017/D5

017/D6

017/D7

017/D7

018/D3

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018/D6

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AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 48

AS MANUFACTURED

00

13 04

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED _____

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

TERMINAL BLOCK ALLOCATION

13.8kV AUTOMATIC CAPACITOR CONTROL PANEL

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX

PLANT NO. C421

DRAWING NUMBER CD-322958

SHEET NO. 051

CONT. 052

REV. NO. 01

DMS

VECTOR

NG/D2-D (2012/01)

NGD200

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